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AUTHOR Marson, Arthur A.; And Others
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ABSTRACT

Through an analysis of the economic costs and benefits of five vocational-technical programs, it was shown that the benefits of a vocational-technical education outweigh the costs. Four programs showing greater benefits than costs were auto body (courses at two technical institutes), materials management, and electronic servicing. Clothing services showed greater costs than benefits. A major emphasis of the study was to examine noneconomic benefits of a vocational-technical adult education (VTAE) program. Graduates of the five programs and a group of high school graduates were surveyed to compare cost benefits and noneconomic factors such as attitude changes, job satisfaction, and social involvement. Some major noneconomic benefits found were that vocational-technical graduates receive a larger amount of help from their school regarding a job search and VTAE graduates enjoy greater job satisfaction than do high school graduates with no post-high school education. Appendixes contain (1) survey forms and cover letters, (2) summaries of cost/benefit/effectiveness procedures (in New York, Indiana, Wisconsin, New Jersey, California, Florida, and Oklahoma), (3) computerized cost model proposal, (4) format for establishing objectives, (5) survey forms for longitudinal evaluation of programs, and (6) norm tables. (CSS)

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FINAL REPORT

Project No. 10-029-151-228

COST BENEFIT MODEL DEVELOPMENT

Project No. 10-029-150-318

COST BENEFIT STUDY

Arthur A. Marson, Research Specialist
Arthur E. Weiner, Administrator-Research & Development
Dr. Robert P. Sorensen, District Director

Moraine Park VTAE District, Fond du Lac, Wisconsin

Joe Myrick, Administrator-Research & Development
Frederick Nierode, District Director

Lakeshore VTAE District, Cleveland, Wisconsin

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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July, 1978

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Art Marson
Research Specialist

SUMMARY

During the past three years a Cost Benefit Model has been developed, refined, tested, and modified by the Research Department at the Moraine Park and Lakeshore Technical Institutes. The final step in the development of the Cost Benefit Model is the present study.

This study relates to two previous studies conducted by the same researcher by analyzing the economic costs and economic benefits of five vocational-technical programs. Again, it was shown that the benefits of a vocational-technical education outweigh the costs. The Present Value of the Benefits range from $-232.61 to $25,080.05 and the Cost Benefit Ratios range from $\frac{.97}{1.00}$ to $\frac{10.07}{1.00}$. The only program from the five that were tested with costs being greater than benefits was the Clothing Services Program. From the students' point of view, he/she will nearly break even by enrolling in that program. However, from society's point of view, the taxpayer will recoup the cost of offering the program in less than four years, and then will receive a benefit of $4,816.94. All of the other four programs show greater benefits than costs.

The major emphasis of the present study was to examine noneconomic benefits of a VTAE program. Noneconomic factors were also considered in the previous studies, but only to a minor degree.

It was discovered, after reviewing many possible noneconomic factors, that there are only a few noneconomic benefits that relate to all VTAE programs. Some programs in particular may have more noneconomic benefits that will offset the costs, however, they have not been identified in the present study.

Major noneconomic benefits include:

1) Vocational-technical graduates receive a large amount of help from their school in finding a job.

2) VTAE graduates enjoy greater job satisfaction than do high school graduates with no post-high school education.

3) Vocational-technical graduates receive more promotions, and remain on the job for longer periods of time than do high school graduates with no post-high school education.

4) VTAE graduates tend to have a more idealistic outlook on life, a greater drive to achieve, more mechanical ability, and are more resourceful than are comparable high school graduates with no post-high school education.

Finally, the present Cost Benefit Study sets the stage for further work in this area. Cost benefit information is becoming increasingly more common in program planning and in program evaluation. The practices, as they have been established in several states, are presented in Appendix B, and they show how other states incorporate cost and benefit information in their evaluation procedures.

In summary, much research has been done in the area of Cost Benefit Studies. Techniques and instruments have been developed to conduct such analysis. It now becomes a task of selecting the best procedures and implementing them at the local and state levels.

COST BENEFIT STUDY

1977-78

INTRODUCTION

When discussing vocational-technical education, policy makers as well as vocational educators and even the general public seem to air a couple of recurring questions: 1) What is the purpose or goal of vocational education? and 2) What does it cost to achieve the goal? An additional question that also comes up asks, "What are the benefits of a vocational-technical education or better yet, how effective is vocational-technical education?"

In order to answer any of these legitimate questions, vocational educators are forced to turn to the principles of economics. The skills and experiences gained in teaching are no longer the skills and experiences required to administer vocational-technical programs. Instead, we have to use the tools of the management scientist, the economist, and the statistician. Cost Benefit Analysis is one of these tools.

Cost Benefit Analysis is a process through which the benefits of a vocational-technical program (measured in economic terms) are compared to the costs of offering the educational program (also measured in economic terms). Four measurements can be used. They include: 1) cost-benefit ratio, 2) payback period, 3) rate of return, and 4) present value. These measurements will be further explained in the remainder of this report.

Another tool that has been tested in recent years is Cost Effectiveness Analysis, which is a process whereby each vocational-technical program is assigned target goals or objectives. At the end of the program, Cost Effectiveness Analysis determines how effective the program was in achieving its target goals, and also how efficient the program was in achieving these same goals.

During the past three or four years, researchers in Wisconsin have been devoting time to develop a Cost Benefit Model. Similar models were developed and tested by Dr. Mehar Arora at the University of Wisconsin-Stout and by the present researcher at the Moraine Park Technical Institute. In the past, emphasis was placed on defining and measuring economic costs and economic benefits. In this study, noneconomic factors are determined and related to the work that has been completed during previous years. It is hoped that by providing data on noneconomic costs and noneconomic benefits of vocational-technical programs, the Cost Benefit Model will be complete, and that many of the questions surrounding the Model will be answered.

PURPOSE

During the previous three years, a Cost Benefit Analysis Model has been developed. This Model has placed a major emphasis on economic -- dollars and cents -- factors. In an effort to continually update and refine the Cost Benefit Model, it was determined that some measurement of noneconomic factors was necessary before the Model would be complete. Therefore, the major purpose of this study was to measure or determine noneconomic costs and noneconomic benefits as they relate to offering vocational-technical education programs. Such factors would include the percent of graduates working in a training related job, the length of time required to obtain a training related job, changes in attitudes toward education or employment, job satisfaction, social involvement, etc.

Also, to complete the Model it is necessary to relate the information that is collected to the Wisconsin VTAE system. How can the Model be used by the system? The answer to this question became a secondary purpose of this research project.

Finally, it must be realized that Cost Benefit Analysis is only one of the tools to be used by the management scientist or economist in evaluating the costs and outcomes of vocational-technical education programs. Cost Benefit Analysis is related to, and can be used in conjunction with other tools such as Cost Effectiveness Analysis, Program Evaluations, Management Information Systems, Program Planning and Budgeting Systems, etc. It is within the scope of this report to explain this relationship.

DEFINITIONS

The definition of terms used in this research report are those used in the Financial Accounting Manual developed by the Wisconsin Board of Vocational, Technical and Adult Education.[1] In addition to the definitions listed in the manual, the following definitions may help the reader understand the concepts that are used in this report.

1. Added Costs: The added costs of a vocational program are calculated as being the difference in cost between the average cost (or marginal cost) of a vocational program and the cost of any other alternative program.

2. Average Cost: The average cost of a vocational education program is the cost of producing one unit of output, in this case, one student. In other words, it equals the total cost divided by the number of students.

3. Capital Costs: Capital costs are defined as being any investment in fixed assets. These costs include buildings, land, etc., and are accounted for in Fund #8, "Fixed Asset Group of Accounts".

4. Cost Benefit Analysis: Cost Benefit Analysis is a comparison of the costs and the resulting monetary benefits of one or more educational programs. It attempts to generate four criteria: 1) the net expected present value, 2) the cost-benefit ratio, 3) the expected internal rate of return, and 4) the expected payback period. Non-economic benefits are often considered in Cost Benefit Analysis, however, they are not used in calculating the four criteria.

5. Cost Effectiveness Analysis: Cost Effectiveness Analysis is an analytical tool for assessing outputs of operating or alternative programs in achieving specified program objectives, as related to costs.

6. Marginal Cost: Marginal cost is the cost of producing an additional unit of output, or by computing the change in total costs by the change in the number of students.

7. Operational Costs: These costs are the cost of operating the school in a given year. They are explained by the seven functions located under Fund #1, "General Fund", and Fund #2, "Restricted Revenue", as explained in the Financial Accounting Manual. Operational costs are subdivided into two groups, instructional costs and support costs. Instruction costs include function 1 - instructor, function 2 - instructional resources, and function 3 - student services; while support costs include function 4 - research, function 5 - general administration, function 6 - general institutional expense, and function 7 - physical plant.[2]

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[1] Uniform Financial Accounting Manual (3rd Edition), Wisconsin Board of Vocational, Technical and Adult Education, Bureau of Administrative Services, Division of Administration and Planning, Feb. 1975, pp. 3.4.1-3.4.18.

[2] All seven functions are described on pages 2.7.1 and 2.7.2 of the Financial Accounting Manual, Ibid.

DEFINITIONS (cont'd)

8. Opportunity Costs: All costs are really opportunity costs, as the cost of any activity is to forego the opportunity to undertake another activity. In this report, the opportunity cost of a vocational education is the foregone opportunity to work for an income.

9. Private Cost: All costs related to inidividual students or graduates are defined as private costs. Among them are: foregone productivity, tuition, fees, travel, foregone leisure, etc. Some private benefits include income gain, greater job satisfaction, more leisure time, etc.

10. Social Costs: All costs to society in maintaining the vocational education system, along with the loss of productivity of a student to society by being in school instead of working, are social costs. Examples of such costs are: investment in the school, the operating cost of the school, possible displacement of a worker by a VTAE graduate, underdevelopment of human skills, etc. Some social benefits include being a better citizen, lower unemployment, less crime, additional productivity, and taxes on increased earnings.

11. Total Cost: The total cost of a vocational program is equal to the sum of the capital costs for the program and the operational costs of the program.

METHOD

When looking at Program Evaluation from an economic standpoint, two types of analysis are frequently considered. The first type, Cost Benefit Analysis, looks at both the inputs (costs) and outputs (benefits) of a vocational education program in dollars and cents.

The inputs expressed in dollar value equals costs, and these costs are compared to the outputs, which expressed in dollars equals benefits. Four techniques are available for making this comparison. These techniques will be discussed later.

The second type of analysis is Cost Effectiveness Analysis. This type of analysis also looks upon inputs in terms of costs and measured in dollars. However, the outcomes of the education program, the effectiveness, is measured in noneconomic terms by determining to what extent predetermined objectives or target goals have been met. The comparison between input and output is measured by such techniques as performance ratio or cost effectiveness ratio.

Both techniques are valid when evaluating programs from an economic standpoint. At Moraine Park, we have chosen to look at Cost Benefit Analysis. Cost Benefit Analysis is an excellent technique for measuring the main goal of vocational-technical education -- obtaining entry level jobs for program participants or helping them to advance on the job. This goal is easily measured through the increased earnings or income of program graduates. Also, Cost Benefit Analysis can and does concern itself with noneconomic aspects of educational programs. Although these aspects are not integrated in the cost-benefit calculations, they are listed separately. These noneconomic aspects are closely examined in this present study.

Economic Cost Benefit Analysis Procedures

Let us first examine economic Cost Benefit procedures that have been established at MPTI and LTI during the previous two years. The first step in conducting a Cost Benefit Analysis is to determine what are the costs and what are the benefits of an educational program. Since educational institutions are supported by the taxpayer (society) and run for the students, a Cost Benefit Analysis should evaluate a program from both of these viewpoints -- what are the costs and the benefits to the taxpayer and what are the costs and the benefits to the student. Table 1 presents a summary of these costs and benefits. Economic factors are listed separately from noneconomic factors in the table. Once these factors, or variables, have been identified, the collection of data relating to them can begin.

Since Cost Benefit Analysis is a retrospective process, it depends on existing data or records for information. In this respect, therefore, any Cost Benefit Analysis is limited by the type of information that is available. The more accurate data that are put into Cost Benefit Formulas, the better the results will be.

TABLE 1
COST - BENEFITS - VOCATIONAL SCHOOL GRADUATE

PRIVATE				SOCIAL			
Economic		Noneconomic		Economic		Noneconomic	
Cost	Benefit	Cost	Benefit	Cost	Benefit	Cost	Benefit
Tuition	Public assistance while in school	Less leisure time	Greater job satisfaction	Social Security	Lower unemployment	Foregone productivity of a student	Better citizen
Fees	Social Security	Missing of family and friends while in school	Greater employability	VA benefits	Taxes on school earnings		More community involvement
Books			Increased social involvment	Public assistance payments	Additional tax revenue	Displacement of a worker by a VTAE graduate	Lower unemployment
Supplies	VA Benefits	Inconvenience of mobility and relocation anxieties	Community involvment	Unemployment payments	Additional productivity of goods		Social organizations
Travel	Scholarships		Social activities while in school	Capital investment in school a. building b. land c. remodeling d. equipment	Interest on Loans		Percent of VTAE graduates remaining in area of training and contributing to its economy
Lodging	Unemployment Compensation (while in school)		Vertical mobility	Operational costs: a. instructor salaries b. auxiliary personnel salaries c. general supplies d. administration salaries e. custodial salaries f. maintenance g. utilities			Better attitudes: a. self-acceptance b. education c. employment
Foregone Earnings	Earnings while in school		Home ownership				
Interest on Loans	Post education income gain		Option of entering other educational programs				

In determining the cost aspect of a Cost Benefit Study, the starting point should be the total expenditures of the educational institution being evaluated. Once a total cost figure is derived, it should be distributed or allocated to each individual cost center in the institution. Two main cost centers are the direct costs and the indirect costs. These two broad divisions are usually further divided into other cost centers to which costs can be allocated. These cost centers and the costs allocated to them are determined by the accounting records used by the educational institution. Therefore, the most important data gathering technique is a record analysis of all accounting records available in the educational institution that is being evaluated.

Another important method of obtaining information is the mailed survey form. This method was used in the present Cost Benefit Project, as surveys were sent to VTAE graduates and to high school graduates. In lieu of the mailed survey form, other techniques such as personal interviews or telephone surveys may be used.

Setting up a comparison between two groups -- a control group and an experimental group -- is another way of gathering information for Cost Benefit Analysis. This can be accomplished by identifying two groups prior to an educational program, let one group participate in the program while the other group does not participate, and make a comparison between the two groups after the program has been completed. This procedure can also be done ex post facto, by making a comparison between two groups after one group had taken an educational program while the second group had not taken the program. The second procedure is slightly less accurate, as no control is exerted over either group until after the educational program has been completed.

Many other methods of gathering data are available. Public institutions are able to supply information and statistics on various groups of people. These institutions include such places as Job Service, Department of Social Services, etc. This can save researchers valuable time in duplicating information that is already available to them.

In this study an economic Cost Benefit Analysis was conducted for five programs. These programs include Auto Body at Moraine Park and Auto Body, Materials Management, Clothing Services, and Electronic Services at Lakeshore. School records were reviewed to obtain the cost of offering these programs. Two similar survey forms were developed and sent to VTAE graduates from these five programs, as well as to a sample of high school graduates (see Appendix A). Data from these two sources was analyzed to compare costs and benefits.

There are four basic techniques for comparing economic costs and economic benefits of a vocational education program. These techniques are defined as follows:

1. Present Value of Benefits Method: The present value of benefits is established by using a discount rate for all costs and benefits in order to reduce them to their present value. Once the present value has been established, costs are subtracted from benefits with the remainder being equal to the present value of the benefits of an educational program.

2. Cost Benefit Ratio Method: The Cost Benefit ratio is calculated by dividing the present value of the benefits by the present value of the costs. In all cases, this ratio has to be larger than one (1) for the educational program to be beneficial.

3. Rate of Return Method: This method establishes the rate of interest that will make the present value of the benefits equal to the present value of the costs. It is calculated by determining what percent the costs have to be multiplied by in order to equal the benefits.

4. Payback Period Method: The payback period method is simply the length of time required to recoup the costs of an educational program. An individual will recoup the cost of the program through increased earnings, while society will recoup the cost of the program through various means -- the most important being increased tax revenue.

The four formulas for calculating the above-mentioned techniques are as follows:

1. Rate of Return

$$\sum_{T=0}^{N} \frac{B_T - C_T}{(1+r)^T} = 0$$

2. Present Value of Benefits

$$\sum_{T=0}^{N} \frac{B_T - C_T}{(1+i)^T}$$

3. Cost Benefit Ratio

$$\frac{\sum_{T=0}^{N} \frac{B_T}{(1+i)^T}}{\sum_{T=0}^{N} \frac{C_T}{(1+i)^T}}$$

4. Payback Period

$$\sum_{T=0}^{N} B_T - \sum_{T=0}^{N} C_T = 0$$

Legend

B = total benefits
C = total costs
N = number of years spanning the study
$\sum_{T=0}$
i = social discount rate (7%)
r = rate of return

Noneconomic Cost Benefit Analysis Procedures

Although noneconomic costs and benefits cannot be included in the four previously mentioned formulas for comparing costs to benefits, they can be included in a Cost Benefit Analysis. There are three basic ways to include noneconomic factors in such an analysis. They are:

A) Treat noneconomic factors as zero. Assume that no matter what the noneconomic factors are, they would not be greater in size and opposite in direction than the economic factors. In other words, noneconomic factors exist, but only in similar proportions as economic factors. In this case, it would not be necessary to identify and measure the noneconomic factors.

B) Evaluate noneconomic factors and discount them. This can be done by measuring the noneconomic factors, then discounting them by predetermined discount rates in order to account for their value in relation to economic factors. For example, if VTAE graduates are more satisfied with their present job than are high school graduates, their economic benefits can be increased by one percent.

C) Treat noneconomic factors as a separate entity. To do this, it is necessary to measure or evaluate noneconomic factors. However, the factors would be listed as a separate entity and would not be included in, or compared with the economic factors.

In the past, it was decided that MPTI and LTI should treat noneconomic factors in the third way. In order to do this, it became necessary to develop a method for assessing value to the noneconomic factors above and beyond the four formulas for comparing the economic cost and benefit factors. This method was developed in the present Cost Benefit Study.

The method, as it has been established, consists of a set of norms. These norms are for such variables as job satisfaction, family background, mobility, membership in social organizations, promotions on the job, etc., and they are established by averaging the returns (data) gathered from surveys and tests used in this study. (See Appendix F)

The norms were determined in order that a reference point would exist for this study and for future studies to compare their results to. The procedure for establishing these noneconomic norms was twofold: first, by comparison survey forms, and second, by attitude surveys.

Two survey forms were developed (See Appendix A), one survey form to be sent to VTAE graduates, and the other to be sent to high school graduates. The forms were nearly identical, except that the one sent to VTAE graduates had additional questions relating to their VTAE education and the one sent to the high school graduates had three questions asking them to evaluate their high school training. Both survey forms were sent out to their respective groups.

After they were completed and returned, norms were established for their respective groups, and comparisons were made between the norms of the two groups. If the norm for the VTAE graduates was considerably different (either higher or lower) from the high school graduates, this difference was treated as a cost or a benefit of attending a vocational-technical institute.

Two attitude surveys were also administered to students and to graduates. These attitude surveys are shown in Appendices A-5 and A-6. The first attitude survey, the "Survey of Study Habits and Attitudes", was administered to a sample of vocational-technical education students and to a sample of high school students. The surveys were scored according to the guidelines established for the test by The Psychological Corporation and norms were established according to these scores. Results again are expressed as a comparison between the norms for both groups of students.

The second attitude survey was one that was locally developed for this Cost Benefit Study. This survey form was administered to both VTAE students and VTAE graduates as well as to high school students and high school graduates. The average scores from these forms served as the norm and comparisons were made between these four groups according to how they scored in relation to the norm. Large variations from the norm were considered to be either costs or benefits of a VTAE education. Since norms have been established in this study, they form a basis to which the results of all future studies can be related. This will show whether the norms used in the present study hold true, as well as determining what noneconomic costs and what noneconomic benefits can stand the test of time.

RESULTS

The results of this Cost Benefit Study are many and varied, in large part due to the variety of noneconomic factors which were examined to see if they had a bearing on either the costs or the benefits of a vocational-technical education program. The results were obtained by analyzing data collected by mailed survey forms or through attitude surveys.

Similar survey forms were developed and mailed to graduates representing all programs at the Lakeshore and Moraine Park Technical Institutes during the previous two years (1975-1977), and also to graduates of five area high schools from these same two years. Thirty-four percent of the vocational school graduates responded to the survey form, and twenty-four percent of the high school graduates responded to their survey form. In both cases, the sample was large enough to allow for a minimum of one hundred respondents from each group, thus ensuring a quality return.

Two attitude surveys were administered to both students and in some cases graduates of area high schools and the two VTAE schools. In total, ninety-eight students and thirty-eight graduates completed an attitude survey. These attitude surveys measured several attitudes and personality traits.

Participation in this Cost Benefit Study is summarized in Table 2. This table shows the various groups of students and graduates that participated, and which survey forms each group completed.

The remainder of the results section is broken down into five sections: 1) Economic Cost Benefit Calculations; 2) Company Attitude Survey -- Study Habits and Study Attitudes; 3) Local Attitude Survey -- Self-Acceptance, Attitudes Toward Education, and Employment; 4) Noneconomic Survey Form; and 5) Personality Traits and Abilities. Each section looks at a separate part of Cost Benefit Analysis, and when they are put together in the end, they present a total look at both economic and noneconomic costs and benefits of offering a vocational education program.

Cost Benefit Calculations - Economic

Data was collected to conduct a cost benefit analysis for five VTAE programs. These programs include Materials Management, Electronic Servicing, Clothing Services, and Auto Body at the Lakeshore Technical Institute and Auto Body at the Moraine Park Technical Institute. The results of this cost benefit analysis are presented in Table 3.

This table shows the present value of benefits, the cost benefit ratio, the rate of return, and the payback period to the student (at top of the table) and to society in general (at bottom of the table). As can be seen, students in all of the programs except Clothing Services receive more benefits than they incur costs. For Clothing Services, the student nearly breaks even at the end of ten years after his/her graduation.[3]

[3]Ten years is the assumed length of time during which benefits can be related back to the educational program. After that, too many other factors enter into the picture and benefits often relate to those factors.

TABLE 2

PERCENT OF PARTICIPATION BY STUDENTS AND GRADUATES

IN THE PRESENT COST BENEFIT STUDY

GROUP	GRADUATE SURVEY FORM RESPONDENTS	COMPANY ATTITUDE SURVEY	LOCAL ATTITUDE SURVEY
MPTI Students	--	79	79
MPTI Graduates	100 out of 316 31.7%	--	13
LTI Graduates	76 out of 200 38.0%	--	--
Total VTAE Graduates	176 out of 516 34.1%	--	13
Total High School Graduates	118 out of 486 24.3%	--	25
High School A Graduates	48 out of 154 31.2%	--	13
High School B Graduates	32 out of 124 25.8%	--	10
High School C Graduates	19 out of 69 27.5%	--	2
High School D Graduates	19 out of 139 13.7%	--	0
High School E Graduates	20 out of 139 14.4%	--	0
Total High School Students	--	25	19

TABLE 3

COST BENEFIT ANALYSIS OF

FIVE VTAE PROGRAMS

	LTI AUTO BODY	MPTI AUTO BODY	LTI ELECTRONIC SERVICING	LTI CLOTHING SERVICES	LTI MATERIALS MANAGEMENT
Private Present Value of Benefits	$337.69	$15,075.19	$4,952.69	$-232.61	$11,987.31
Private Cost Benefit Ratio	1.07/1.00	3.03/1.00	1.60/1.00	.97/1.00	1.74/1.00
Private Rate of Return	8%	64%	23%	5%	45%
Private Payback Period	7.36 years	2.70 years	4.81 years	8.28 years	4.62 years
Social Present Value of Benefits	$8,884.11	$25,080.05	$13,624.17	$4,816.94	$21,597.64
Social Cost Benefit Ratio	4.22/1.00	6.52/1.00	10.07/1.00	2.72/1.00	5.34/1.00
Social Rate of Return	76%	90%	90%	63%	86%
Social Payback Period	2.45 years	2.00 years	1.54 years	3.30 years	2.98 years

On the other hand, society receives substantial returns or benefits for offering and supporting each of the five programs analyzed. The value of the benefits start at $4,816.94 for Clothing Services and goes to a high of $25,080.05 for the Moraine Park Auto Body Program.

Company Attitude Survey -- Study Habits and Study Attitudes

A "Survey of Study Habits and Attitudes", published and copyrighted by the Psychological Corporation of New York in 1953 and 1965, was administered to a sample of students from Moraine Park and from High School A. The purpose of administering this survey was twofold; first, to determine if there is any difference in attitudes toward school and/or study habits between high school students, new students entering Moraine Park, and students who attended Moraine Park for at least one semester; and second, to test the survey questionnaire to determine if it may be useful to administer to future VTAE students as a guide to improving their study habits and attitudes and/or to use as a screening instrument in counseling and placing students in the various programs.

Results from the sample testing are presented in Table 4. As can be seen in this limited test sample, the VTAE students score higher than the high school students, and the returning VTAE students score higher than the entering VTAE students. This difference may be due to better study habits and more mature and more acceptable attitudes being acquired by the VTAE students while at Moraine Park. However, due to the limited sample, it may be due to some other contributing factors as well.

TABLE 4

RESULTS FROM THE SURVEY OF STUDY HABITS AND ATTITUDES

	DELAY AVOIDANCE	WORK METHODS	STUDY HABITS	TEACHER APPROVAL	EDUCATION ACCEPTANCE	STUDY ATTITUDES	STUDY ORIENTATION
Returning VTAE Students	29.84	30.87	60.74	37.08	35.82	70.68	133.63
Entering VTAE Students	27.85	26.51	54.41	33.63	34.83	68.71	123.07
Students from High School A	17.0	21.2	38.2	21.3	20.6	41.6	79.60

The "Survey of Study Habits and Attitudes" was also used to test the assumption that VTAE students who are shown to have better study habits and/or a better attitude toward education and acceptance of their instructors will receive higher grades in school. The test consisted of measuring the correlation between the scores received on the "Survey of Study Habits and Attitudes" and the students' final grade point average. This test was only conducted for returning VTAE students as they graduated in May 1978, and a final grade point average was available for them.

The results of this test show that there is a positive correlation between the student's survey scores and the student's final grade point average. The correlation was measured at .398 and was considered to be very significant. Significance in most studies of educational research is established at the five percent level of significance, the level at which such a correlation could be attributable to chance. The correlation of .398 between student attitudes and study habits in this study is significant at the two percent level, therefore in only two percent of the cases could a correlation of the scores on the "Survey of Study Habits and Attitudes" and student Grade Point Averages be attributed to chance.

A third factor which may be included into the correlation of study habits and attitudes with final grades is the student's intelligence. One would expect to find an exceptionally high correlation comparing study habits and attitudes and intelligence with final grades.

Local Attitude Survey

A survey form to test Self-Acceptance, Attitude Toward Education, and Attitude Toward Employment was developed by the Moraine Park research department. This survey was administered to high school students and graduates and to vocational school students and graduates. The results from the local attitude survey show that all groups tested have positive attitudes in each of the three areas. The differences between groups and between the three attitudes is rather small and should be considered insignificant. Two exceptions are the difference in Self-Acceptance and the difference in Attitude Toward Employment between high school students and vocational school students. Surprisingly, the high school students scored higher on both of these attitudes as well as on Attitude Toward Education than did the VTAE students. However, further study is suggested to see if these differences hold true over time and between groups of students.

Also, some discrepancy can occur in the Attitude Toward Employment. This discrepancy is due to many students and/or graduates working in low paying part-time jobs, or working in a position for which they may be over qualified for, but unable to give up because they cannot find a better job at the present time. If these assumptions hold true, attitudes toward employment should change once more stable employment is acquired.

TABLE 5

LOCAL ATTITUDE SURVEY RESULTS

GROUP	SELF-ACCEPTANCE	ATTITUDE TOWARD EDUCATION	ATTITUDE TOWARD EMPLOYMENT
High School Students	.88	.82	.88
VTAE Students	.79	.78	.76
High School Graduates	.83	.81	.83
VTAE Graduates	.85	.83	.81

Noneconomic Cost Benefit Survey Form

A survey form was completed by 176 VTAE graduates and 118 high school graduates. From the results of this graduate survey, many noneconomic costs and benefits of a vocational-technical education can be determined. These costs and/or benefits include:

1. The "family background" of VTAE graduates is educationally lower than that of the average high school graduate.
   --high school graduate: 65% of their fathers are high school graduates or less
   --VTAE graduates: 76% of their fathers are high school graduates or less
   --approximately 75% of the mothers for both groups are high school graduates or less

2. Similarly, the "family background" of VTAE graduates is economically lower than that of the high school graduates.
   --high school graduate
   father's income -- 22% under $10,000
   26% $10,000-15,000
   51% over $15,000
   --VTAE graduate
   father's income -- 23% under $10,000
   40% $10,000-15,000
   38% over $15,000

3. The number of graduates who express their right to vote is nearly identical.
   --93% of high school graduates intend to vote in 1980
   --94% of VTAE graduates intend to vote in 1980

4. Vocational-technical school graduates receive a large amount of help from their school in finding a job.

TABLE 6

SOURCES OF FINDING A JOB

SOURCE OF HELP	VTAE GRADUATE	HIGH SCHOOL GRADUATE
School Placement Office	20%	3%
Parents	8%	21%
Friends	6%	17%
Self	41%	37%
Other	25%	22%

5. More VTAE graduates than high school graduates are employed full-time in a position they intend to make permanent.

TABLE 7

EMPLOYMENT

	VTAE GRADUATE	HIGH SCHOOL GRADUATE
Employed Full-Time	77%	54%
Employed Part-Time	11%	21%
Unemployed	11%	26%
Employed In A Permanent Position	58%	31%

Part of this difference in employment may be due to the number of persons who are presently in school continuing their education.

6. A larger percent of unemployed high school graduates are in school than are unemployed VTAE graduates.
   --71% of unemployed high school graduates are in school
   --46% of unemployed VTAE graduates are in school

7. VTAE graduates enjoy greater job satisfaction than do high school graduates. The difference in the number of graduates who are satisfied with their jobs is only small, but it has been consistent in studies conducted over the past three years.

TABLE 8

JOB SATISFACTION

	VTAE GRADUATE	HIGH SCHOOL GRADUATE
Satisfied	88%	84%
Not Satisfied	12%	16%

8. More vocational-technical graduates experience periods of unemployment than do high school graduates. The length of time they remain unemployed varies considerably between graduates and between years.

TABLE 9

AMOUNT OF TIME OUT OF WORK

	VTAE GRADUATE	HIGH SCHOOL GRADUATE
1976 - Percent	23%	19%
Average No. of Weeks	11.4	14.0
1977 - Percent	36%	19%
Average No. of Weeks	10.3	8.2

9. Vocational-technical graduates, in general, seem to have higher educational goals than do high school graduates. However, it is very difficult to make any conclusive decisions in this area because VTAE graduates are further up the educational ladder than are high school graduates. This distorts the educational objectives of both groups of graduates.

TABLE 10

EDUCATIONAL GOALS OF GRADUATES

	VTAE GRADUATE	HIGH SCHOOL GRADUATE
Percent Who Do Not Intend To Acquire Further Education or Training	20%	28%
Highest Degree They Intend To Obtain:		
None	10%	35%
Vocational Diploma	25%	23%
Associate Degree	33%	14%
B.S. Degree	16%	13%
M.S. Degree	9%	9%
Ph.D. Degree	0%	1%
Other	7%	3%

10. Roughly one-third of the VTAE graduates surveyed stated they had to give up a large amount or a very great amount of their personal and/or family life in order to attend a vocational-technical institute.
--percent of personal and/or family life that had to be given up by VTAE students while attending school:

a. very great amount - 10%
b. large amount - 22%
c. some - 40%
d. very little - 27%

11. Fifty-nine percent of the high school graduates and fifty-eight percent of the VTAE graduates who responded to the survey form belong to some type of social and/or community organization. More high school graduates belonged to school-related organizations than did VTAE graduates.

TABLE 11

SOCIAL PARTICIPATION BY GRADUATES

TYPE OF ORGANIZATION	HIGH SCHOOL GRADUATE	VTAE GRADUATE
School Related	35%	19%
Sportsmen's Clubs	11%	14%
Church Related	30%	33%
Social Clubs	6%	14%
Volunteer Work	11%	8%
Fraternal	1%	4%
Community Services	7%	8%
TOTAL	59%	58%

12. Vocational-technical school graduates receive more promotions, and remain on the job for longer periods of time than do high school graduates.

TABLE 12

EMPLOYMENT INFORMATION

	HIGH SCHOOL GRADUATE	VTAE GRADUATE
Average No. of Jobs (Each Promotion Considered A New Job)	1.80	3.37
Full-Time Jobs (Ave.)	.90	1.77
Part-Time Jobs (Ave.)	.90	1.59
Average Number of Promotions	1.73	2.55
Average Length of Each Job	7.92 months	9.45 months

13. It takes VTAE graduates longer to find a job following their graduation than it takes high school graduates to find a job following their graduation.

--Average length of time to find a job:
  a. high school graduates = 2.07 weeks
  b. VTAE graduates = 6.04 weeks

Personality Traits and Abilities

Both high school graduates and vocational graduates were asked to rate themselves on twenty-six personality traits and/or abilities. They were to rate themselves on a five-point scale according to how they felt they rated on each particular trait or ability in relation to other people their age. The following statements can be made after reviewing the ranking of both groups of graduates on all twenty-six traits or abilities.

1. Academic Ability - VTAE graduates see themselves as having more academic ability than do high school graduates.

2. Artistic Ability
   Public Speaking
   Mathematical Ability
   Mechanical Ability - Both groups of graduates felt that they were below average in all four of these abilities.

3. Drive to Achieve - VTAE graduates see themselves as having a greater drive to achieve. Both groups of graduates feel above average in this trait.

4. Idealism - VTAE graduates tend to have a more realistic outlook on life.

5. Independence - Both groups of graduates place high value on their independence.

6. Mechanical Ability - Vocational-technical graduates see themselves as having more mechanical ability than do high school graduates.

7. Resourcefulness - VTAE graduates feel that they are very resourceful, more so than what high school graduates feel.

8. Cheerfulness
   Drive to Achieve
   Independence
   Adaptability to Change - Both groups of graduates feel rather strongly in all four of these areas.

9. Several personality traits and/or abilities are the same for both groups of graduates, with both groups considering themselves to be average in the trait or ability. They include:

Ability to Handle Stress	Optimism
Athletic Ability	Originality
Impulsiveness	Personal Organization

9. (continued)

Leadership Ability	Persistence
Popularity	Sensitivity to Criticism
Intellectual Self-Confidence	Stubbornness
Social Self-Confidence	Tolerance
Reading Ability	

There are two other possible noneconomic costs and/or benefits which should be mentioned, although they haven't been directly calculated in this study. They are Displacement, Vacuum, or Multiplier Effects and Improved Rate of Absenteeism. Both of these variables are to be determined through an employer survey.

It has been found that all three effects; displacement, vacuum, and multiplier, exist in relation to vocational-technical education programs. In rough terms, the displacement of qualified workers is nearly 40%, while the remaining 60% fill a vacuum of positions for which there are no untrained people qualified. Due to the sixty percent vacuum effect, the multiplier effect will also exist as new jobs are bound to be developed relating to those jobs already in effect.

It also has been found that in many cases, employers feel that VTAE graduates have helped to improve their companies rate of absenteeism. At the very least, it has been found that VTAE graduates (with few exceptions) do not increase a company's rate of absenteeism.

Finally, some noneconomic benefits can be determined by the annual six-month follow-up study. The two most significant of these benefits include: 1) roughly ninety percent of the VTAE graduates are employed in training related jobs, and 2) at least two-thirds of the graduates are employed within the District in which they were trained.

CONCLUSIONS

From the large amount of data that was collected during the course of this study and presented in the results section, a number of conclusions can be drawn. These conclusions include the following:

1. From an economic viewpoint, the benefits of a vocational-technical education to society and to the students themselves are greater than the costs of offering the education to the student.

2. VTAE students score higher on tests of study habits and attitudes than do high school students.

3. The "Survey of Study Habits and Attitudes", published by The Psychological Corporation, is a useful and accurate measurement of study habits and attitudes. It can be used by students for self-improvement in these two areas, and it also can be used by counselors and instructors to determine poor students who may need special help to improve their methods of studying and/or their attitude toward school, teachers, etc. The one drawback to using this instrument is the turnaround time between the actual testing, and the receiving and distributing the test results.

4. There is a correlation between attitudes (study habits) and program success.

5. Both high school students and graduates as well as VTAE students and graduates have positive attitudes toward education and toward employment as well as positive degrees of self-acceptance. Little evidence exists to show that a vocational-technical education has any effect on these three attitudes.

6. Vocational-technical school graduates receive much more help from their school in finding a job than do high school graduates.

7. More VTAE graduates are employed in a position they consider permanent within two years after their graduation than are high school graduates.

8. Vocational-technical graduates enjoy more job satisfaction than do high school graduates.

9. A vocational-technical education does effect the student's personal as well as family life. However, two-thirds of the graduates surveyed stated that they weren't greatly hampered in spending time with family and friends.

10. A vocational-technical education has little effect in motivating students to become involved in social and/or community organizations. They seem to participate in such organizations to the same degree as the general public.

11. VTAE graduates receive more promotions on the average than do high school students entering directly into the labor market.

12. High school graduates find a job faster following their graduation than do VTAE graduates.

13. There are several personality traits and/or abilities which VTAE graduates feel they have to a greater degree than high school graduates feel they have. They include: academic ability, drive to achieve, idealism, mechanical ability, and resourcefulness.

14. Vocational, technical and adult institutes do a good job in the placement of graduates. However, in the present study and in many related studies, VTAE graduates are continuing their education either at another vocational school or at the college level. They feel that more can and/or should be done for students like themselves who plan to continue their education rather than look for a job.

RECOMMENDATIONS

The following recommendations are offered to further utilize the Cost Benefit Model that has been established in this study as well as in the two previous cost benefit studies.

1. A Cost Benefit Model has been developed and is available for implementation in the Wisconsin VTAE system. The Model consists of three separate Cost Benefit Studies. Economic Cost Benefit Analyses were conducted during the 1975-76 Study. These Analyses were refined and related to Adult Education courses during the 1976-77 Study. And, finally, the noneconomic aspects of cost benefit were examined in this present Study. To fully implement the Cost Benefit Model developed by these three studies, the following proposals also need to be acted upon.

   1.1 The proposal for developing a Computerized Cost Model should be adopted and the cost model developed in order to ascertain operating costs on a program basis. (See Appendix C)

   1.2 A longitudinal data gathering system should be developed. This system would consist of a series of four survey forms to collect data at various turning points in a student's educational and employment experiences. The first data gathering form would be administered at the time when a student enrolls in a vocational-technical school. This form would gather data on a student's background as well as his/her educational goal or objectives. (See Appendix E-1)

   The second survey form would be an attrition form to be completed by each student who selects to withdraw from school before the completion of his/her program. Data from this survey form would indicate whether or not the student has met his/her goal as well as providing reasons why the student has decided to withdraw from school. (See Appendix E-2)

   The third survey form is already in existence, but may need some modifications. This form is the six-month follow-up survey form. From this form one should be able to determine whether or not goals and objectives have been met, as well as providing data on economic and noneconomic benefits of the vocational education program. (See Appendix E-3)

   A final survey form should be administered to vocational school graduates three years after their graduation. This form would show if the benefits determined by the six-month follow-up study have a long-range or lasting effect upon the student. (See Appendix E-4)

   1.3 Program goals and objectives should be established for each vocational-technical program. Once such objectives have been identified and written in measurable terms, an evaluation of a program's effectiveness can be determined and related to the program's cost. (See Appendix D)

RECOMMENDATIONS (cont'd)

2. The Cost Benefit Model should become a part of or be related to a total system for program evaluation. Many other states have developed such a system for evaluating vocational-technical programs, and all of the program evaluation systems contain a measurement of cost benefit or cost effectiveness as an integral part. A summary of the evaluation systems developed and operating in New Jersey, California, Oklahoma, New York, and Florida are presented in the Appendix to this report.

3. Provisions should be made in the Management Information System that is being developed to allow for the collection and analysis of data relating to cost benefit and to a program evaluation system.

4. The "Survey of Study Habits and Attitudes" as well as the "Attitude Survey" should continue to be used. These tests are valid measures of noneconomic benefits of a vocational-technical education as well as a good indicator of how successful a student will be in his/her educational program.

5. Greater effort should be expended by the VTAE system to help graduates who select to continue their education at another vocational school or at the college level. More articulation with other post high school educational agencies needs to be undertaken. Students are spending much time and money taking courses because their new school will not credit them for courses they have completed at the previous school they were enrolled in.

6. Information for present cost benefit analyses is gathered by comparing high school graduates with no additional post high school education to vocational-technical graduates from a particular program. An alternate method for collecting this data would be to survey students at the time of their enrollment and at the time of their graduation. Such a comparison should be attempted in future cost benefit studies.

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APPENDIX

A. Survey Forms and Cover Letters

B. Summaries of Cost/Benefit/Effectiveness Procedures

1) PERC - Empire State College, New York
2) Indiana
3) Background - Wisconsin
4) New Jersey
5) California
6) Florida
7) Oklahoma

C. Computerized Cost Model Proposal

D. Format for Establishing Objectives

E. Survey Forms for Longitudinal Evaluation of Programs

F. Norm Tables

APPENDIX A-1

Moraine Park Technical Institute

District Office 235 North National Avenue Fond du Lac, Wisconsin 54935 (414) 922-8611

March 13, 1978

Dear Former Student:

The Moraine Park Technical Institute and the Lakeshore Technical Institute are presently conducting a Cost Benefit Study. The purpose of this study is to determine the cost of a vocational-technical education and to compare these costs to the benefits derived from them. In addition to economic (dollars and cents) costs and benefits we are also interested in non-economic factors such as attitude changes, job satisfaction, social involvement, etc. This information is necessary in order to insure that we are wisely spending your tax dollars by offering programs beneficial for our students and for society in general.

With this goal in mind, a survey form is enclosed to obtain information necessary for the completion of this study. I would appreciate it very much if you would take a few minutes to complete and return this survey form. A postage-paid envelope is provided.

Be assured that the information you supply is strictly confidential and will be released in such a manner that individual respondents cannot be identified.

A reply before March 31 would be appreciated. If further information is desired, please contact me at 922-8611.

Thank you very much for your cooperation and assistance.

Sincerely,

Art Marson

Art Marson
Research Specialist

el

Enclosure

An Equal Opportunity Employer/Educator functioning under an Affirmative Action Plan.
Moraine Park Vocational, Technical and Adult Education District
Robert P. Sorensen, Ph. D.
District Director

APPENDIX A-2

COST BENEFIT FORM B

1. Your Sex: 1.___Male 2.___Female
2. Marital Status: 1.____married 2.____not married
3. Were you 1.____married, 2.____single when you attended MPTI or LTI?
4. Year of birth: _____ Place of birth: _____
5. Which best describes the community that you thought of as your hometown when you were in high school?
   1.____Farm
   2.____Town (under 10,000)
   3.____Small city (10,000-100,000)
   4.____Medium city (100,000-500,000)
   5.____Large city (500,000 or more)

If you do not live with your natural parents, answer the next two questions about the parents or guardians who most influenced your life.

6.-8. What is the highest level of formal education obtained by your parents and/or spouse? (Mark appropriate level for each parent and spouse)

		(6) Father	(7) Mother	(8) Spouse
Some high school or less	1.			
High school graduate	2.			
Some college	3.			
College graduate	4.			
Some graduate or professional training	5.			
Graduate or professional degree	6.			
Attend vocational-technical school	7.			
Graduate from vocational-technical school	8.			
Does not apply	9.			

9.-10. What is your parents' annual income?

(9) Father	(10) Mother
1.___less than 5,000	1.___less than 5,000
2.___5,000-10,000	2.___5,000-10,000
3.___10,000-12,500	3.___10,000-12,500
4.___12,500-15,000	4.___12,500-15,000
5.___15,000-20,000	5.___15,000-20,000
6.___20,000-30,000	6.___20,000-30,000
7.___30,000-50,000	7.___30,000-50,000
8.___50,000 and over	8.___50,000 and over

11. Please check all social organizations, clubs, etc. of which you are a member:

Organizations	Number
1.____School-related organizations	
2.____Sportsmen's clubs	
3.____Church or religious organizations	
4.____Social clubs or societies	
5.____Volunteer work	
6.____Fraternal organizations	
7.____Community services	

12. Did you vote in the presidential election in 1976? 1.___Yes 2.___No

13. Do you plan to vote in 1980? 1.___Yes 2.___No

14. What type of high school program did you participate in?

    1.___vocational (Capstone) 2.___academic (college prep)

15. I found my present job with help from: (check the most appropriate answer)

    1.____ a teacher
    2.____ the school's placement office
    3.____ my parents or guardians
    4.____ a brother and/or sister
    5.____ a friend
    6.____ completely on my own
    7.____ other (please specify:_____)

16. Please fill in the following information:

    a. Number of jobs held since high school: _____
       Number full-time: _____ Number part-time: _____

    b. Number of promotions (salary and/or responsibility) received: _____

    c. What is the average length of time you spent on a job, considering each promotion as a new job? _____months.

17. What is your present employment status?

    1.____employed full-time 3.____employed part-time
    2.____military service 4.____unemployed

18. If you are unemployed, please explain:

    1.____ I am taking care of home and/or family.
    2.____ I am in school
    3.____ I do not have enough training.
    4.____ There is an oversupply of workers in my job field.
    5.____ The training I took was a poor choice. I didn't know enough about my interests and abilities.
    6.____ I can't make enough money in the job for which I was trained to make it worth working.
    7.____ I am temporarily laid off, but believe I'll be called back soon.
    8.____ Other (Please explain: _____)

19. How long did it take you to find a job (training related) after graduating from MPTI, LTI or HATC? _____weeks.

20. Do you consider your present job to be permanent?

    1.____Yes 2.____No

21. How many hours do you work during an average week?

    1.____ does not apply
    2.____ 10 hours or less
    3.____ between 11 and 20 hours
    4.____ between 21 and 25 hours
    5.____ 26 to 30 hours
    6.____ 31 to 35 hours
    7.____ 36 to 40 hours
    8.____ 40 to 45 hours
    9.____ over 45 hours

22. How satisfied are you with your present job?

1.____ very satisfied
2.____ fairly satisfied
3.____ average satisfaction
4.____ very little satisfaction
5.____ highly dissatisfied, but intend to stay on the job
6.____ highly dissatisfied, looking for a new job

23. Were you out of work at any time (except for school) during 1976?

1.____Yes 2.____No number of weeks:_____

24. Were you out of work at any time during 1977?

1.____Yes 2.____No number of weeks:_____

25. Do you think your occupational future will require you to get more training?

1.____Yes, and I will acquire it
2.____Maybe, but I won't acquire it unless absolutely necessary
3.____No

26. What is the highest academic degree you intend to obtain?

1.____none
2.____vocational diploma
3.____associate degree
4.____bachelor's degree
5.____master's degree
6.____doctor of philosophy or education
7.____medical degree (M.D., D.D.S.)
8.____law degree
9.____other (please specify:_____)

27. In terms of your personal life (e.g., leisure time with family and friends) how much do you think you had to give up in order to complete your studies at MPTI, LTI or MATC?

1.____a very great amount
2.____a large amount
3.____some
4.____very little

28.-53. Rate yourself on each of the following traits when compared with the average person of your own age. We are interested in estimates of how you see yourself.

Trait	Lowest 10%	Below Average	Average	Above Average	Highest 10%
28. Ability to handle stress	1.___	2.___	3.___	4.___	5.___
29. Academic ability	1.___	2.___	3.___	4.___	5.___
30. Athletic ability	1.___	2.___	3.___	4.___	5.___
31. Artistic ability	1.___	2.___	3.___	4.___	5.___
32. Cheerfulness	1.___	2.___	3.___	4.___	5.___
33. Drive to achieve	1.___	2.___	3.___	4.___	5.___
34. Idealism	1.___	2.___	3.___	4.___	5.___
35. Impulsiveness	1.___	2.___	3.___	4.___	5.___
36. Independence	1.___	2.___	3.___	4.___	5.___

Trait	Lowest 10%	Below Average	Average	Above Average	Highest 10%
37. Leadership ability	1.___	2.___	3.___	4.___	5.___
38. Mathematical ability	1.___	2.___	3.___	4.___	5.___
39. Mechanical ability	1.___	2.___	3.___	4.___	5.___
40. Optimism	1.___	2.___	3.___	4.___	5.___
41. Originality	1.___	2.___	3.___	4.___	5.___
42. Personal organization	1.___	2.___	3.___	4.___	5.___
43. Persistence	1.___	2.___	3.___	4.___	5.___
44. Popularity	1.___	2.___	3.___	4.___	5.___
45. Public speaking ability	1.___	2.___	3.___	4.___	5.___
46. Reading ability	1.___	2.___	3.___	4.___	5.___
47. Resourcefulness	1.___	2.___	3.___	4.___	5.___
48. Self-confidence (intellectual)	1.___	2.___	3.___	4.___	5.___
49. Self-confidence (social)	1.___	2.___	3.___	4.___	5.___
50. Sensitivity to criticism	1.___	2.___	3.___	4.___	5.___
51. Stubbornness	1.___	2.___	3.___	4.___	5.___
52. Tolerance	1.___	2.___	3.___	4.___	5.___
53. Adaptability to changes	1.___	2.___	3.___	4.___	5.___

54. COMMENTS:

Thank you very much for taking time to complete this survey!

APPENDIX A-3

Moraine Park Technical Institute

District Office 235 North National Avenue Fond du Lac, Wisconsin 54935 (414) 922-8611

May, 1978

Dear Graduate:

The Moraine Park Technical Institute, with the cooperation of _____High School, is conducting a follow-up study of 1977 high school graduates. The purpose of this follow-up study is to discover what changes have occurred in your life since graduation last June, and to assist MPTI in conducting a Cost-Benefit Study. The purpose of the Cost-Benefit Study is to determine the cost of a vocational education in comparison to the benefits received due to the education. In this way, Moraine Park Technical Institute can wisely use your tax dollars in offering courses that are beneficial to both our students and to society in general.

It would be greatly appreciated if you would take a few minutes from your busy schedule to complete the enclosed survey form. Be assured that the information you supply on this survey form is strictly confidential and will be released only in such a manner that individual respondents cannot be identified.

Thank you very much for your cooperation. If you have any questions regarding this survey, please feel free to call me at 922-8611.

Sincerely,

Art Marson

Art Marson
Research Specialist

kb

Enclosure

An Equal Opportunity Employer/Educator functioning under an Affirmative Action Plan.
Moraine Park Vocational, Technical and Adult Education District
Robert P. Sorensen, Ph. D.
District Director

APPENDIX A-4

COST BENEFIT FORM D

1. Your Sex: 1.___Male 2.___Female
2. Marital Status: 1.___married 2.___not married
3. Year of birth: _____ Place of birth: _____
4. Which best describes the community that you thought of as your hometown when you were in high school?
   1.___Farm
   2.___Town (under 10,000)
   3.___Small city (10,000-100,000)
   4.___Medium city (100,000-500,000)
   5.___Large city (500,000 or more)

If you do not live with your natural parents, answer the next two questions about the parents or guardians who most influenced your life.

5.-7. What is the highest level of formal education obtained by your parents and/or spouse? (Mark appropriate level for each parent and spouse)

		(6) Father	(7) Mother	(8) Spouse
Some high school or less	1.	_____	_____	_____
High school graduate	2.	_____	_____	_____
Some college	3.	_____	_____	_____
College graduate	4.	_____	_____	_____
Some graduate or professional training	5.	_____	_____	_____
Graduate or professional degree	6.	_____	_____	_____
Attend vocational-technical school	7.	_____	_____	_____
Graduate from vocational-technical school	8.	_____	_____	_____
Does not apply	9.	_____	_____	_____

8.-9. What is your parents' average annual income?

(8) Father	(9) Mother
1.___less than 5,000	1.___less than 5,000
2.___5,000-10,000	2.___5,000-10,000
3.___10,000-12,500	3.___10,000-12,500
4.___12,500-15,000	4.___12,500-15,000
5.___15,000-20,000	5.___15,000-20,000
6.___20,000-30,000	6.___20,000-30,000
7.___30,000-50,000	7.___30,000-50,000
8.___50,000 and over	8.___50,000 and over

10. Please check all social organizations, clubs, etc. of which you are a member:

Organizations	Number
1.___School-related organizations	_____
2.___Sportsmen's clubs	_____
3.___Church or religious organizations	_____
4.___Social clubs or societies	_____
5.___Volunteer work	_____
6.___Fraternal organizations	_____
7.___Community services	_____

11. Did you vote in the presidential election in 1976? 1.___Yes 2.___No

12. Do you plan to vote in 1980? 1.___Yes 2.___No

13. What type of high school program did you participate in?

1.___vocational (Capstone) 2.___academic (college prep)

14. I found my present job with help from: (check the most appropriate answer)

1.___ a teacher
2.___ the school's placement office
3.___ my parents or guardians
4.___ a brother and/or sister
5.___ a friend
6.___ completely on my own
7.___ other (please specify: _____)

15. Please fill in the following information:

a. Number of jobs held since high school: _____
   Number full-time: _____ Number part-time: _____

b. Number of promotions (salary and/or responsibility) received: _____

c. What is the average length of time you spent on a job, considering each promotion as a new job? _____months.

16. What is your present employment status?

1.___employed full-time 3.___employed part-time
2.___military service 4.___unemployed

17. If you are unemployed, please explain:

1.___ I am taking care of home and/or family.
2.___ I am in school
3.___ I do not have enough training.
4.___ There is an oversupply of workers in my job field.
5.___ The training I took was a poor choice. I didn't know enough about my interests and abilities.
6.___ I can't make enough money in the job for which I was trained to make it worth working.
7.___ I am temporarily laid off, but believe I'll be called back soon.
8.___ Other (Please explain: _____)

18. How long did it take you to find a job after graduating from high school?
_____weeks.

19. Do you consider your present job to be permanent?

1.___Yes 2.___No

20. How many hours do you work during an average week?

1.___ does not apply
2.___ 10 hours or less
3.___ between 11 and 20 hours
4.___ between 21 and 25 hours
5.___ 26 to 30 hours
6.___ 31 to 35 hours
7.___ 36 to 40 hours
8.___ 40 to 45 hours
9.___ over 45 hours

- over -

21. How satisfied are you with your present job?

1.____ very satisfied
2.____ fairly satisfied
3.____ average satisfaction
4.____ very little satisfaction
5.____ highly dissatisfied, but intend to stay on the job
6.____ highly dissatisfied, looking for a new job

22. Were you out of work at any time (except for school) during 1976?

1.____Yes 2.____No number of weeks:_____

23. Were you out of work at any time during 1977?

1.____Yes 2.____No number of weeks:_____

24. Do you think your occupational future will require you to get more training?

1.____Yes, and I will acquire it
2.____Maybe, but I won't acquire it unless absolutely necessary
3.____No

25. What is the highest academic degree you intend to obtain?

1.____none
2.____vocational diploma
3.____associate degree
4.____bachelor's degree
5.____master's degree
6.____doctor of philosophy or education
7.____medical degree (M.D., D.D.S.)
8.____law degree
9.____other (please specify:_____)

26. Are you doing what you had planned when you left high school?

1.____Yes 2.____No Why? _____

27. In what way could your high school have given you a better background for the things that you are presently doing?

_____

28. Are you satisfied with what you are doing? 1.____Yes 2.____No
Why?_____

29.-54. Rate yourself on each of the following traits when compared with the average person of your own age. We are interested in estimates of how you see yourself.

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Trait	Lowest 10%	Below Average	Average	Above Average	Highest 10%
29. Ability to handle stress	1.___	2.___	3.___	4.___	5.___
30. Academic ability	1.___	2.___	3.___	4.___	5.___

Trait	Lowest 10%	Below Average	Average	Above Average	Highest 10%
31. Athletic ability	1.___	2.___	3.___	4.___	5.___
32. Artistic ability	1.___	2.___	3.___	4.___	5.___
33. Cheerfulness	1.___	2.___	3.___	4.___	5.___
34. Drive to achieve	1.___	2.___	3.___	4.___	5.___
35. Idealism	1.___	2.___	3.___	4.___	5.___
36. Impulsiveness	1.___	2.___	3.___	4.___	5.___
37. Independence	1.___	2.___	3.___	4.___	5.___
38. Leadership ability	1.___	2.___	3.___	4.___	5.___
39. Mathematical ability	1.___	2.___	3.___	4.___	5.___
40. Mechanical ability	1.___	2.___	3.___	4.___	5.___
41. Optimism	1.___	2.___	3.___	4.___	5.___
42. Originality	1.___	2.___	3.___	4.___	5.___
43. Personal organization	1.___	2.___	3.___	4.___	5.___
44. Persistence	1.___	2.___	3.___	4.___	5.___
45. Popularity	1.___	2.___	3.___	4.___	5.___
46. Public speaking ability	1.___	2.___	3.___	4.___	5.___
47. Reading ability	1.___	2.___	3.___	4.___	5.___
48. Resourcefulness	1.___	2.___	3.___	4.___	5.___
49. Self-confidence (intellectual)	1.___	2.___	3.___	4.___	5.___
50. Self-confidence (social)	1.___	2.___	3.___	4.___	5.___
51. Sensitivity to criticism	1.___	2.___	3.___	4.___	5.___
52. Stubbornness	1.___	2.___	3.___	4.___	5.___
53. Tolerance	1.___	2.___	3.___	4.___	5.___
54. Adaptability to changes	1.___	2.___	3.___	4.___	5.___

55. COMMENTS:

Thank you very much for taking time to complete this survey!

51

APPENDIX A-5

ATTITUDE SURVEY

Self-Acceptance: The following is a list of statements concerning yourself. You are to respond to each statement by circling the number which indicates to what extent you agree with the statement. Remember, there are no right or wrong answers. The best answer is what you feel is true of yourself.

		Strongly Agree	Agree	Uncertain	Disagree	Strongly Disagree
1)	I enjoy myself most when I'm alone	1	2	3	4	5
2)	When someone asks advice about a personal problem, I usually say "It's up to you to decide", rather than tell him what he should do.	1	2	3	4	5
3)	I know I'm not the person I pretend to be, I guess I put on a show to impress other people.	1	2	3	4	5
4)	In general, a person has to fight his way through life. This means that if someone stands in the way, he will be hurt.	1	2	3	4	5
5)	I'm afraid for people I like to find out what I'm really like for fear they will be disappointed in me.	1	2	3	4	5
6)	I don't say much at a social affair, as I'm afraid people will criticize me or laugh at me if I say the wrong thing.	1	2	3	4	5
7)	I prefer to be alone to having a close friendship with any of the people around me.	1	2	3	4	5
8)	I'm not afraid to meet new people. I feel I'm a worthwhile person and there's no reason, why they should dislike me.	1	2	3	4	5
9)	If it'll help me get what I want in life, I see no objection to stepping on other people's toes.	1	2	3	4	5

		Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
10)	I feel self-conscious when I'm with people who have a superior position to mine in business or in school.	1	2	3	4	5
11)	When I'm in a group I usually don't say much for fear of saying the wrong thing.	1	2	3	4	5
12)	I have a tendency to sidestep my problems.	1	2	3	4	5
13)	I seldom worry about other people. I'm really pretty self-centered.	1	2	3	4	5
14)	I can be comfortable dealing with all types of people.	1	2	3	4	5
15)	I can become so absorbed in the work I'm doing, that it doesn't bother me not to have any intimate friends.	1	2	3	4	5
16)	I don't approve of spending time and energy in doing things for others. I'm for looking after my family and myself and letting others fend for themselves.	1	2	3	4	5
17)	When people say nice things about me, I find it hard to believe they really mean it. I think they probably are just kidding me.	1	2	3	4	5
18)	I often tell people what to do when they are having trouble in making a decision.	1	2	3	4	5
19)	If people are weak and inefficient, I tend to take advantage of them. You must be strong to achieve your goals.	1	2	3	4	5
20)	I am easily irritated by people who argue with me.	1	2	3	4	5
21)	In dealing with younger persons, I trust they can do a good job.	1	2	3	4	5
22)	There are very few times that I compliment people for their talents, or for jobs they've done.	1	2	3	4	5
23)	I enjoy doing little favors for people even if I don't know them very well.	1	2	3	4	5
24)	I'd like it if I could find someone who would tell me how to solve my personal problems.	1	2	3	4	5

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
25) I don't hesitate to urge people to live by the same high set of values which I myself have.	1	2	3	4	5
26) I can be friendly with people who do things which I consider to be wrong.	1	2	3	4	5
27) I'm quite shy and self-conscious in social situations.	1	2	3	4	5
28) I feel confident that I can do something about the problems that may arise in the future.	1	2	3	4	5
29) In order to get along and be liked, I do what people expect of me rather than anything else.	1	2	3	4	5
30) I look on most of the attitudes and feelings I have toward other people as being quite natural and acceptable.	1	2	3	4	5

Attitude toward education: The following list of statements concern education. They should be answered in the same manner as the above statements. Remember, the correct answer is how you feel about the statement.

1) Education encourages an individual to think for himself.	1	2	3	4	5
2) Education prepares people to face the problems of real life when they get out of school.	1	2	3	4	5
3) You can enjoy life more without the pressures of a post-high school education.	1	2	3	4	5
4) A post-high school education is worth the time and effort it requires.	1	2	3	4	5
5) Education doesn't teach you what to do during your leisure time.	1	2	3	4	5
6) Getting work experience is more important than getting an education.	1	2	3	4	5

	Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
7) Education will tend to promote solutions to the world's problems.	1	2	3	4	5
8) Vocational, technical courses are practical.	1	2	3	4	5
9) School is for intelligent people, to help them get ahead.	1	2	3	4	5
10) A person can learn more by going to vocational school for 2 years than if he were working 2 years during that time.	1	2	3	4	5
11) A person is foolish to keep on going to school after he finishes high school if he can get a job.	1	2	3	4	5
12) A post-high school education makes a person a better citizen in this country.	1	2	3	4	5

Employment: The following are 25 statements about your job. If you are unemployed, you may skip the remainder of this survey. If you are working, however, please continue to respond to these statements in the same manner as you did to the above statements.

1) I try hard to do high quality work.	1	2	3	4	5
2) I consider my job temporary for me.	1	2	3	4	5
3) It pays to do nothing and let the community support me.	1	2	3	4	5
4) I want to work to support my family.	1	2	3	4	5
5) My boss could replace me tomorrow.	1	2	3	4	5
6) My job is boring.	1	2	3	4	5
7) The highest responsibility a man has is toward earning a living.	1	2	3	4	5
8) My dream is for a job with a minimum amount of work for a maximum amount of pay.	1	2	3	4	5
9) My boss cares about me and my job.	1	2	3	4	5

		Strongly agree	Agree	Uncertain	Disagree	Strongly disagree
10)	I would like to change to another occupation.	1	2	3	4	5
11)	I am well trained for my present job.	1	2	3	4	5
12)	I never worry about material things such as food or clothing.	1	2	3	4	5
13)	There is a good future for me in my present job.	1	2	3	4	5
14)	I would like to change to a different employer, but keep the same job.	1	2	3	4	5
15)	Once I'm out of a job, I'll enjoy being idle for a time before looking for another job.	1	2	3	4	5
16)	I don't mind having to support myself.	1	2	3	4	5
17)	I'm really trying hard to hold onto my job.	1	2	3	4	5
18)	I work hard, earn a living, and don't expect to have what I can't afford.	1	2	3	4	5
19)	Work is something to be avoided, if possible.	1	2	3	4	5
20)	It's O.K. for me to be absent when I feel like it.	1	2	3	4	5
21)	I like the people I work with.	1	2	3	4	5
22)	The responsibility for making a living shouldn't be so important that one doesn't have time for anything else.	1	2	3	4	5
23)	Sometimes I want to earn my own living and sometimes I doubt it.	1	2	3	4	5
24)	The only thing I want from my job is the paycheck.	1	2	3	4	5
25)	I feel my family has benefited from my job as we have a happier home life.	1	2	3	4	5

THANK YOU FOR YOUR OPINIONS!

APPENDIX A-6

Form C

GRADES 12-14

SSHA

Survey of Study Habits and Attitudes

Brown—Holtzman

Do not open this booklet until you are told to do so. Wait for the examiner's instructions.

DO NOT MAKE ANY MARKS IN THIS BOOKLET

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Printed in U.S.A.

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APPENDIX B-1

PROGRAM EFFECTIVENESS AND RELATED COSTS

Program Effectiveness and Related Cost (PERC) is a process of program evaluation developed and tested by the Empire State College Office of Research and Evaluation, Saratoga Springs, New York. The process is described and research instruments are presented in a well-organized handbook published during January, 1977.

Unlike most studies dealing with the cost of educational programs, where emphasis is first placed on costs and then on program effectiveness, the PERC process places prime emphasis on program effectiveness and then looks at related costs. While looking at both effectiveness and cost, the major goal of the process is to provide data at convenient times to administrators in order that they may make well-informed decisions.

The PERC system provides for a longitudinal data base. Data is collected from students at various points throughout their course of study. It is collected using two basic techniques; (1) case studies, and (2) survey forms. An initial survey form is administered at the time of student entrance. This form is the Student Biographical Inventory and it is administered to all incoming students. It basically provides information on students' background, their characteristics, their learning styles, and their goals. This information is supplemented by case study techniques: student interviews plus student and faculty rating forms.

During the course of their studies, it is useful to look again at students to see what changes are occuring and why. Therefore, PERC calls for the administration of the Student Experience Questionnaire to approximately 20 percent of the original group of students to identify changes in objectives, educational program, learning experiences, etc. This data is again supplemented by rating forms and student interviews. In addition, should a student elect to drop out of school, an Attrition Questionnaire is called for to identify any positive or negative effects this might have.

A third survey form is called for during the course of study and this form is the Faculty Questionnaire. This form recognizes the importance of faculty goal attainment to long-term program effectiveness, and it explores such things as backgrounds, motivations, views of the program, workload questions, participation in governance, career orientation, professional development, and perceived outcomes for faculty.

At graduation time, students are given a Program Completion Questionnaire which mirrors the Student Biographical Inventory. This survey form shows whether or not students achieved their goals and why.

Finally, two years after their graduation, a Graduate Follow-Up Questionnaire is sent to graduates. It's purpose is to determine if the graduate's perceptions of their program have changed since graduation.

The sum of all these survey forms, reinforced by case study techniques, is to create a chain of evidence to link up student learning (change) with the educational program and its related costs.

Turning to the area of cost, there are many features of PERC that differ from other cost systems. Cost data is developed around and related to program effectiveness; it is triggered by the student's learning experiences not some budgetary formula; some costs not included in other cost formulas are included in PERC; PERC treats costs of developing locations, learning resources, and programs as deferred assets; and finally, portions of faculty salaries devoted to administration are assigned as overhead, not as direct instructional costs.

Although the PERC cost framework differs from other cost systems, it is so constructed that it is compatible with most other cost frameworks based on conventional units such as FTE, credit hours, or program major.

In conclusion, it must be remembered that the emphasis of the entire PERC system is to disseminate the results to all appropriate administrators and managers. In this way, they will be armed with the required facts to make intelligent decisions on the future of their educational institution.

AM:kb
5/3/78

APPENDIX B-2

COST-EFFECTIVENESS/BENEFIT ANALYSIS

INDIANA MODEL

Cost-effectiveness/benefit analysis is an analytical technique for assessing outcomes of existing and/or new programs in relation to their specified program objectives and against their program costs.

The cost-effectiveness/benefit analysis can be used as a systems analysis technique, evaluation method, and planning tool for vocational programs.

The Cost-Effectiveness/Benefit Analysis Model

The conceptual model is a simplified representation of relationships among the components involved in analyzing the cost-effectiveness/benefit of postsecondary vocational programs. Within the input-output framework, the model specifies four major components and generates three kinds of cost-effectiveness/benefit measures (see Figure I).

1. Vocational program classification

   The postsecondary vocational programs can be classified by either the U.S. Office of Education code or HEGIS classification scheme. The model is directed to analyze the cost-effectiveness/benefit of the postsecondary occupational subprogram areas or courses within the program areas.

2. Program objectives

   The postsecondary vocational program objectives can be stated in a time frame by which they are matched with such factors as enrollment, preparation, placement and advanced studies, and job satisfaction and economic benefits. These are:

   (1) Students' enrollment in the occupational program
   (2) Occupational preparation for career development
   (3) Program completers' placement to meet manpower demands
   (4) Completers' election of advanced studies
   (5) Increase in program completers' job satisfaction, status, and economic benefits

   Each of the program objectives is specified in measurable terms as target goals.

3. Program outputs

   Program outputs are actual outcomes from the vocational program. Output indicators can be compared with predetermined target goals.

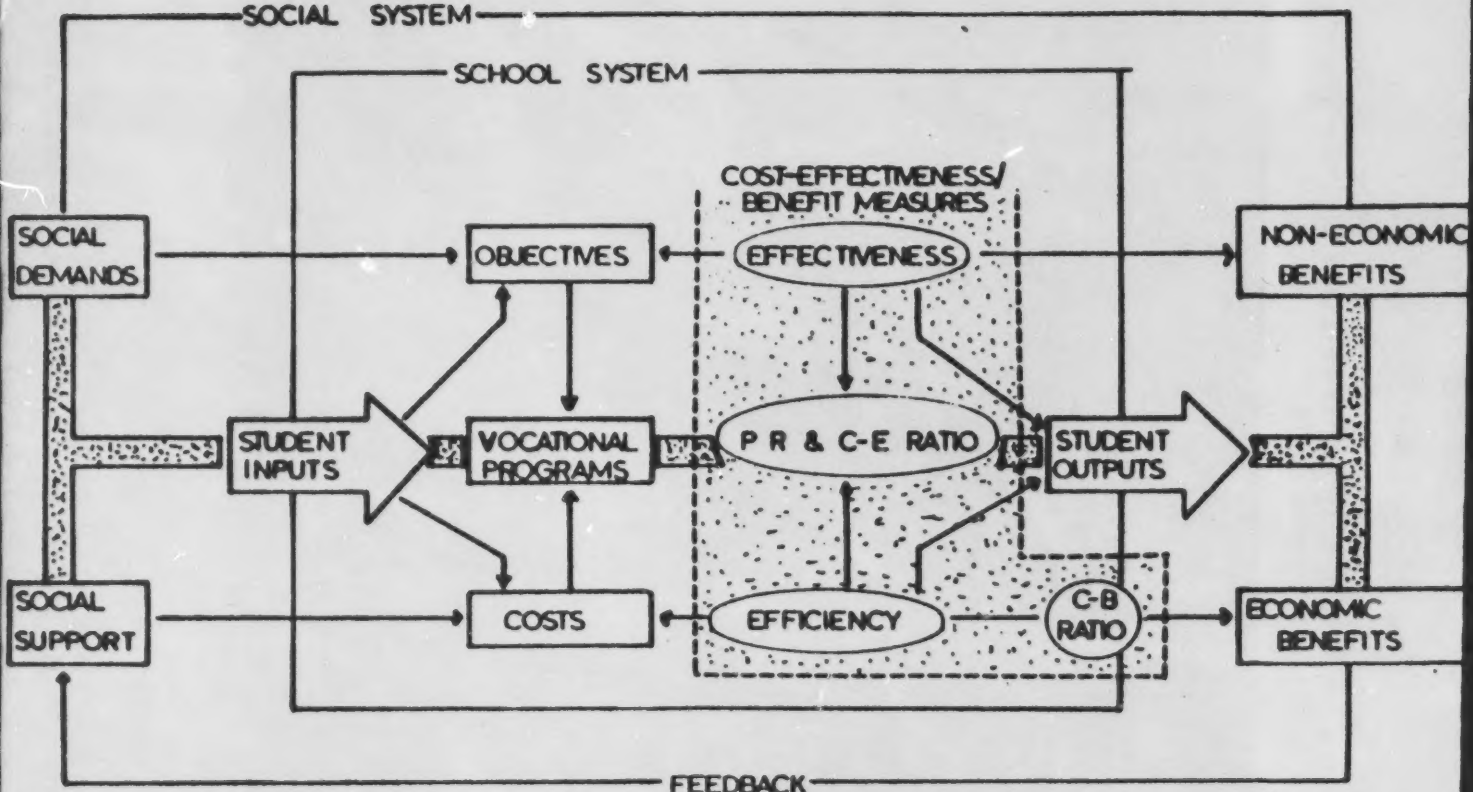

FIGURE 1 A COST-EFFECTIVENESS/BENEFIT ANALYSIS MODEL FOR POSTSECONDARY VOCATIONAL PROGRAMS

4. Program costs

Program costs are annual expenses for operating vocational programs at the institutional level. Annual expenses can be determined by direct and indirect costs. Direct costs include the following six items:

(1) Annual salaries of teaching staff
(2) Fringe benefits for teaching staff
(3) Purchased services
(4) Instructional supplies and materials
(5) Instructional equipment
(6) Instructional space

Indirect costs can include:

(1) Departmental administration and support service costs
(2) College administration and support service costs
(3) Institutional administration and support service costs

The sum of the direct and indirect costs is the total program cost. Student opportunity cost or foregone income can be added to the program costs when comparing a total of program operation and student opportunity costs with completers' future earnings.

5. Program effectiveness

Effectiveness is a measure of goal attainment, that is, the extent to which specified target goals are achieved.

$$\text{Effectiveness Score(s)} = \frac{\text{Output(s)}}{\text{Target Goal(s)}}$$

Effectiveness index:

(1) Composite program effectiveness index
(2) Average program effectiveness index
(3) Weighted composite effectiveness index
(4) Weighted average effectiveness index

6. Cost efficiency

Internal efficiency is measured by the unit cost:

$$\text{Unit Cost} = \frac{\text{Total Costs}}{\text{Unit of Output(s)}}$$

External efficiency is computed by cost-benefit measures such as:

(1) Net percent value of incomes
(2) Cost-benefit ratio
(3) Internal rate of return

Performance efficiency is measured by dividing the actual unit cost by the budgeted or average unit cost:

$$\text{Performance Efficiency Index} = \frac{\text{Actual Unit Cost}}{\text{Budgeted or Average Unit Cost}}$$

7. Cost-effectiveness ratio and performance ratio

The cost-effectiveness ratio indicates the degree of goal attainment per unit cost as follows:

$$\text{Cost-Effectiveness Ratio} = \frac{\text{Effectiveness Index}}{\text{Actual Unit Cost}}$$

The performance ratio is a criterion by which to evaluate the degree of management performance.

$$\text{Performance Ratio} = \frac{\text{Effectiveness Index}}{\text{Performance Efficiency Index}}$$

Procedures for Using the Model

A standard procedure has been developed for using the cost-effectiveness/benefit analysis model. The procedure involves nine steps within the planning, implementing, and utilizing phases (see Figure II).

1. Planning a cost-effectiveness/benefit study

When the planning phase starts, determine the purposes of the study, identify appropriate resources, and develop a study plan for achieving the purposes.

(1) Determine the purposes of a cost-effectiveness/benefit study
(2) Identify available resources for the study
(3) Develop a study plan

2. Implementing a cost-effectiveness/benefit study

Implement the analysis according to the schedule in the plan. The implementing phase includes:

(1) Determine target goals
(2) Assess program outputs
(3) Analyze program costs
(4) Compute cost-effectiveness/benefit measures

3. Utilizing the results from the study

After the study is finished, interpret the measures and report them to decision-makers so that they can utilize the results in the decision-making process.

(1) Interpret the measures
(2) Utilize the results for program evaluation, development, and planning

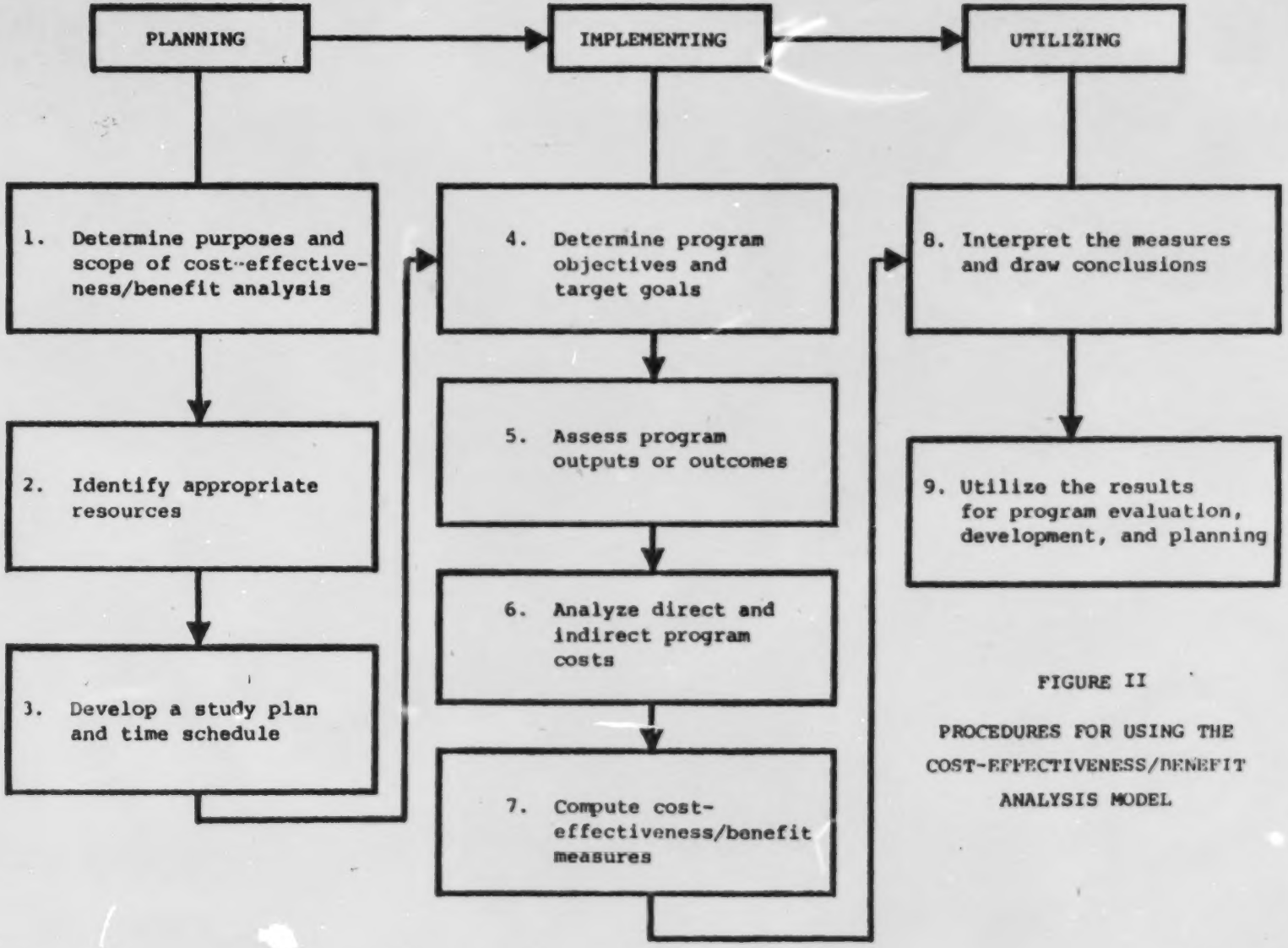
PLANNING
IMPLEMENTING
UTILIZING
1. Determine purposes and scope of cost-effectiveness/benefit analysis
2. Identify appropriate resources
3. Develop a study plan and time schedule
4. Determine program objectives and target goals
5. Assess program outputs or outcomes
6. Analyze direct and indirect program costs
7. Compute cost-effectiveness/benefit measures
8. Interpret the measures and draw conclusions
9. Utilize the results for program evaluation, development, and planning

FIGURE II

PROCEDURES FOR USING THE COST-EFFECTIVENESS/BENEFIT ANALYSIS MODEL

APPENDIX B-3

BACKGROUND -- WISCONSIN COST BENEFIT STUDIES

Cost Benefit Analysis began in earnest in Wisconsin during 1973. At that time, state research staff felt there was a need to do research in the area of cost benefit. Working through the Research Committee of the Administrator's Association, a consortium of nine VTAE districts was formed. Each participating district was to develop and test a technique for determining the costs and the benefits of one vocational education program. The results from these nine cost benefit studies led to increased interest in this area and called for a uniform cost benefit model.

During November, 1975, Dr. Mehar Arora of the University of Wisconsin-Stout developed such a model to identify and measure the societal costs and the societal benefits of vocational education programs. Procedures for establishing costs were developed and they included the cost of instruction, the cost of administration, and the cost of auxiliary services related to the program under evaluation. In a similar manner, procedures for measuring societal benefits are explained. Finally, five methods for comparing societal benefits to societal costs are illustrated. These five methods included: 1) the net present value of societal benefits, 2) the net annual value of societal benefits, 3) the rate of return, 4) the cost-benefit ratio, and 5) the payback period. The actual testing of the procedures explained in the manual was not conducted due to time limitations.

Dr. Arora continued his research on costs and benefits in a report published during January, 1977. This report contains all of the forms required to collect and analyze data for conducting a Cost Benefit Analysis. The forms, with their instructions, are so designed to enable a researcher to arrive at a societal cost-benefit ratio for a vocational or manpower program.

Meanwhile, the Moraine Park Technical Institute became involved in cost benefit studies and conducted a Cost Benefit Study during the 1975-76 school year. This study outlined a model, similar to that of Dr. Arora, for conducting a Cost Benefit Analysis on vocational-technical programs. The model was tested on a sample of nine full-time programs at the Lakeshore and the Moraine Park Technical Institutes. The results from these test programs show that vocational-technical education at these two technical institutes is a profitable endeavor for both the student and for society. Over the ten-year time span used in the study, VTAE graduates obtained benefits with a present value of $13,758.88 and society obtained benefits with a present value of $24,078.00. For the same ten-year time span, the ratio of benefits to costs was 2.05 to 1.00 for students and 5.63 to 1.00 for society. Finally, the length of time required to earn back what it cost for the VTAE education (the payback period) was 4.11 years for a student and 2.84 years for society in general.

A second Cost Benefit Study was conducted at Moraine Park the following year (1976-77). This study was conducted to expand and retest the previous Cost Benefit Model. A sample of nine full-time programs at three technical institutes (Moraine Park, Lakeshore, and North Central) was again evaluated with the results being nearly the same as was experienced during the previous year. In addition, this second study developed procedures for evaluating the costs and the benefits of adult education courses. It was found that these courses also are cost efficient.

BACKGROUND (cont'd)

The third and final Cost Benefit Study to be conducted at Moraine Park is outlined in this report. It tends to draw together the work that has been accomplished in the past, and sets a stage for further work in the area of costs and benefits of vocational-technical education programs.

APPENDIX B-4

NEW JERSEY EXEMPLARY PRACTICE IN

IMPROVING COST-EFFECTIVENESS OF VOCATIONAL PROGRAMS

Background Information

In July 1974, the New Jersey State Department of Education, through its Division of Vocational Education, initiated and funded a research/exemplary project to develop a cost computation model for vocational education programs. Dr. Charles R. Doty, a Rutgers University professor, was contracted as director and chief investigator of the project. Upon completion of the pilot study, the State Department of Education continued to fund the study as a second phase of the project through Fiscal Year 1976, and the total project was completed in June 1976.

Objectives

1. Develop, test, and revise a cost data collection model.

2. Develop guidelines which will enable the local administrator to efficiently and accurately use the model to answer the question: What does it cost to educate one person in a selected program?

3. Apply the model in a comprehensive high school, a full-time area vocational technical high school, and a shared-time area vocational-technical high school.

4. Answer the question: What is the ratio of cost among college preparation education, general education, and vocational education programs?

Approaches

The essential approach to solving the problem of per-pupil costs is to partition the cost figures by different levels. Four basic levels were identified for the project. These were:

1. District level
2. Building level
3. Vocational building level
4. Program level

The district level contains the expenditures of salaries for administrators, support personnel, facilities, utilities, and services available to all students in a district. The criterion used to determine if an expense was a district level one was: Do all students have the opportunity or are being served by this service or facility? For example, in theory the superintendent serves all students, therefore, his salary should be placed at the district level. His salary plus all other such expenses judged at the district level would be totaled then divided by the total number of students enrolled in the district to give a district level cost per student.

The building level expenditures are those for salaries for administrators, support personnel, facilities, utilities, and services other than direct instruction available to all students attending class in that building. A building such as a comprehensive high school may be considered as two separate buildings (even though a single roof may cover both), i.e., nonvocational and vocational. To classify the expenditures to the proper level one must ask: Is this expenditure for an item to serve all the students attending class in this building (nonvocational or vocational)? Once the nonvocational building level expenditures have been classified and totaled, the total number of students enrolled in nonvocational courses can be divided into the cost to obtain the per pupil cost for building level (nonvocational).

The vocational building level, both within a comprehensive high school or as an AVTS, expenditures are those for salaries for administrators, support personnel, facilities, utilities, and services other than direct instruction available to all students attending class in that building. To classify the expenditures to the vocational building level one must ask: Is this expenditure for an item to serve all the students attending class in this vocational building? Once the vocational building level expenditures have been classified and totaled, the total number of students enrolled in classes in the vocational building can be divided into the cost to obtain the per pupil cost for the vocational building level.

The program level consists of the expenditures for instructor salaries, supplies, textbooks, replacement, repair or new equipment, and utilities. The program level, for example, is English, mathematics, industrial arts, foreign language, vocational auto body, vocational electronics or art. The criterion for classification of expenses in this category is: Is this expenditure for an item that will serve only those persons enrolled in, e.g., art classes? All expenses that are classified for teaching art are totaled. This total is then divided by the total number of students enrolled in all the art classes to give a per pupil cost for the art program.

Findings

The findings were linked with the four objectives of the study.

Objective 1. Refine the Model

Perhaps the first finding that should be mentioned is that the model described in the pilot phase and refined in the second phase does seem reasonable for future use. The word "reasonable" seems appropriate because it is believed that the model provides accurate costs per pupil per program or educational goal. The investigators estimate that a person familiar with the school district accounting system should be able to calculate the cost per pupil for all programs and educational goals in a school in approximately one week's time.

Objective 2. Guidelines for Model

Guidelines were developed with data calculations and formulas plus examples of actual costs in three types of schools. These may have to be arranged into a manual and used by LEA personnel to determine the feasibility of the guidelines.

Objective 3. Apply the Model in Three Types of Schools

Two comprehensive high schools were used for data collection. The first school was the one that had been used in the pilot phase. It was not chosen randomly. The second comprehensive high school, which was randomly chosen, was not totally compatible with the model. The incompatibility was the lack of costs which could be attributed to a vocational building level. There were no direct costs such as a vocational director or supervisor or secretarial service. To have prorated costs to a vocational building level in this school would have complicated the model too much.

A check of other comprehensive high schools did reveal costs that could have been directly attributed to a vocational building level. It seems the randomly selected comprehensive high school was unique in this one aspect.

The method of recording and storing data regarding financial expenditures for any one school varies among the types of schools. Because of this variability the investigators found it necessary to confer with school personnel in order to knowledgeably enter the accounting systems. It does not seem logical that such variation should exist.

Accurate depreciation accounting of facilities, site, equipment, and tools does not seem to exist. Perhaps this is due to school officials regarding the calculation of depreciation as important only for business and industry for internal revenue purposes.

The investigators were able to calculate depreciation of equipment (not building or site) only for the shared time AVTS. This school was new and the records were still intact.

In some cases exact expenditures could not be defined. For example, money was budgeted for supplies for specific programs. The principal was authorized to distribute this money to the programs. However, there were not accounts available by which the investigators could verify the money allocated as indicated by the budget. The investigators assumed the budget was followed.

Because there were no utility meters on individual buildings or laboratories and the effort to determine specific equipment usage was found to be an impossible task, the decision w s made to use cubic footage for calculating costs to programs. This decision still seems logical.

The utility costs for any programs conducted after the regular school day were not eliminated (except for the shared time AVTS). The utility costs are then slightly inflated. This error affects all programs and educational goals so the final ratios should not be affected.

Objective 4. Ratio of Cost

The ratio of cost among college preparation, general education, and vocational education is based on operating costs. Operating costs include instructor salaries and benefits, supplies, textbooks, travel, utilities, and equipment that is either repaired or replaced. New equipment purchases were depreciated in 5 or 10 years, i.e., equipment not previously in a laboratory or shop.

Recommendations

The model described in the report seems feasible for obtaining accurate cost per pupil. It is, therefore, recommended that other states adapt this model for the computation of per-pupil cost of their vocational programs. It is believed that good cost accounting is a pre-requisite for the measurement of cost effectiveness. It is not recommended, however, that comparisons among schools be made using the cost so determined without a measure of the objectives and outcomes of the schools.

APPENDIX B-5

CALIFORNIA VOCATIONAL EDUCATION PROGRAM MONITORING SYSTEM

The "Vocational Education Act of 1976" (PL 94-482) placed much emphasis in four areas. They include: 1) vocational education planning; 2) extending, improving, and maintaining existing vocational education programs; 3) developing new programs; and 4) overcoming sex discrimination and sex stereotyping. The "Act" also details the establishment of the Vocational Education Data and Occupational Information Data Systems (Section 161). Sections 105 and 112 specify that a number of evaluations are to occur. Section 108 describes the Annual Program Plan and Accountability Reports to be prepared by the participating states. All of these factors have implications for the local institutions because the information mandated by this Act must originate from the local entity.

Aside from legislative mandates and other external pressures, most vocational educators want to know that their programs are performing in an efficient manner. They also desire an efficient means to justify their decisions and operational procedures. It was in this context that work was initiated to develop the VOCATIONAL EDUCATION PROGRAM MONITORING SYSTEM. Since "accountability" is measured by comparing stated goals and objectives to actual program performance, the "Monitoring System" was designed to provide administrators with a means to effectively and routinely satisfy this requirement. The Monitoring System is much more than "just another report". It is a diagnostic procedure which can be used to detect potential problems.

The development of the Monitoring System began with a review of pertinent studies, legislation requirements, existing report requirements, and the existing format for the District Plan for Vocational Education. The results of this review were reduced into key or critical information items which could be quantified through a standard data collection and analyzation process.

The information items identified by this effort are designated as "Critical Factors". Ten of these Critical Factors were identified and defined.

The Monitoring System as described in the next paragraphs of this paper was designed primarily for a review of existing operational programs. However, the system may also be of value when a new program is being designed.

The heart of the Monitoring System is the Program Monitoring Matrix. It is designed as the instrument to record the findings of the monitoring process. The "Matrix" format permits the results of a single measure of the program performance (critical factor) to be displayed in its proper relationship with other performance factors. The Matrix is simply a chart or graph consisting of vertical columns and horizontal rows. The intersections of the column and rows form cells. The cells provide the space for entering the specific data.

The quantifiable data entered in the cells of the Matrix measures what a training program is as compared to what it was expected to be.

The data representing the actual performance of a program is obtained from existing required state reports; i.e., VE or CCOE 48, 45 and the fiscal claim forms or the base data utilized to compile these reports. The data describing the expected program performance should be specified in the local district's Plan for Vocational Education.

Each of the ten Critical Factors are assigned a column on the Matrix. Also, each Factor has been assigned a weighted value which appears immediately below the column number. There are five "Sets of Rows" on the Matrix. These sets are provided for five successive program monitoring cycles. Each "Set" is composed of three individual rows. The "Set of Rows" designated by the letter "E" is set aside for recording the "expected performance results" for the ten Critical Factors. These expected results are obtained from the "Performance Objectives" listed in the "District Plan for Vocational Education".

The other "Set of Rows" designated F-1, F-2, etc. are provided for recording actual results obtained through the monitoring process.

The quantified data for each critical factor is recorded in the matrix cell formed by the "Critical Factor Column" (Columns 1-10) and the "Set of Rows" labeled "Actual Data" (F-1, F-2, etc.). The data to be recorded in the row labeled "Percent of Objectives Achieved" is calculated by dividing the actual performance data by the expected data recorded in the "E Set of Rows". The data to be recorded in the "Product" row is calculated by multiplying the "Percent" value times the weighted value. The sum, obtained by adding from left to right, the factor recorded in the "Product Row", is recorded in Column "G" and becomes the "Performance Indicator".

The design of the matrix facilitates comparisons of actual program performance from two perspectives. The first perspective allows a comparison between the "Expected Performance" recorded in the "A" series of Row Sets. The second perspective pertains to comparing the "Actual Performance Indicator" calculated at one point in time with that which is calculated at another point in time. An analysis of each of these two types of comparisons can reveal the actual efficiency of the program. This process can also reveal potential weakness or problem areas in the operation of the program.

Public secondary school program administrators should consult the California School Accounting Manual, Publication No. 8, Roman Numeral III-3, for detailed program budgeting instructions and explanations. Community college program administrators should consult their own "Budget and Accounting Manual" which is compatible with the secondary school accounting procedure.

Critical Factors Description

A. Cost Per Placement (Matrix Column No. 9)

The average cost per placement is the quotient obtained by dividing the total program expenditures by the number of students placed.

The expenditures include:

Teachers' Salaries	Other Supplies
Supervisors' Salaries	Equipment Replacement
Counselors' Salaries	Equipment
Inst. Aids' Salaries	Textbooks
Clerical Salaries	Other Books
Other Classified Salaries	Contracts (Pers.)
Employee Benefits	Conf., Travel
Instructional Supplies	Contracts (Rent)
Media Supplies	Interprogram Charges

VOCATIONAL EDUCATION PROGRAM MONITORING MATRIX

A	USOE Code	Program Title													G
	Critical Factor Column Numbers	1c	2c	3c	4c	5c	6c	7c	8c	9c	10c	11c	12c	13c	14c	
	Critical Factor Weighted Values	2.4	2.1	2.8	2.7	2.5	2.8	2.5	2.2	2.2	2.1	2.4	2.3	2.2	2.4	
B	Expected Prog. Operation Period (Y S Q M W D H)	Length of Minimum Program Operation	Training Cycles	Enrollments	Completions	Non-Completions	Placements	Demand/Supply	Handicapped	Disadvantaged	Ltd. Eng. Spkng.	Average Cost per Enrollment	Average Cost per Completion	Average Cost per Placement	Benefit/Cost Ratio	PERFORMANCE INDICATOR
C	Expected Completion Date / /															
D 1	Dates Monitored / /															
2	/ /															
3	/ /															
4	/ /															
5	/ /															
E	Expected Data															
	% Objectives Achieved	100	100	100	100	100	100	100	100	100	100	100	100	100	100	
	Product	24	21	28	27	25	28	25	22	22	21	24	23	22	24	339
F1	Actual Data															
	% Objectives Achieved															
	Product															
F2	Actual Data															
	% Objectives Achieved															
	Product															
F3	Actual Data															
	% Objectives Achieved															
	Product															
F4	Actual Data															
	% Objectives Achieved															
	Product															

Example:

If the program costs during the preceding academic year are $29,999 and the placements for the same period are 30 persons, the average cost per placement is $1,000 ($29,999 ÷ 30 = $1,000).

B. Benefit/Cost Ratio (Matrix Column No. 10)

The Benefit/Cost Ratio is the comparison between the average cost per placement and imparts benefits (to society) per placement that can be directly measured in dollars.

The Benefit/Cost Ratio is to be calculated in the following manner:

1. Assume that the national minimum wage rate represents the entry-level wage of unskilled workers in all occupations (e.g., $2.65 per hour).

2. Assume that the primary benefit of vocational education is the average entry-level wage earned by program placements. The program administrator is required to determine the entry-level wages being earned by placements in the occupations for which they are trained, or in related occupations, and insert these in the appropriate place on the reverse of the matrix. Wage information can be determined from direct telephone surveys or from Department of Labor publications including Occupational Outlook Handbook and Area Wage Surveys.

3. Average wages for all placements that have received training during the previous academic year (e.g., $3.40 per hour). Calculate the difference between the minimum wage (MW) and the average placement's wage (PW) by subtracting the minimum wage ($2.65 per hour) from the average placement's wage ($3.40 per hour).

   PW-MW = Benefit (in increased wages from vocational education training)

   $3.40 - $2.65 = $.75 per hour

   Multiply the difference times 40 hours in order to compute the weekly benefits.

   $.75 per hour X 40 hours = $30

   Multiply weekly earnings by 52 in order to estimate the yearly benefit.

   $30 X 52 weeks = $1,560 a year

4. Reduce the average cost per placement (e.g., $1,000) and the average yearly benefit per placement ($1,560) to a comparable ratio (e.g., average cost per placement - $1,000, Average Benefit per Placement = $1,560).

   1,560 ÷ 1,000 = 1.6

   1.6:1 is the Benefit/Cost Ratio for the program.

For the purposes of the Monitoring Matrix, it is assumed that the benefit to society of vocational education is employment in training related occupations, and is largely monetary. Some of the other economic benefits to society of vocational programs are: employment benefits, reduction in welfare payment benefits, equitable income distribution benefits, reduction in crime benefits, mobility benefits, and intergeneration education benefits. There are also social, cultural, and political benefits that are difficult to express in terms of dollar values, i.e., self-esteem of graduates, improved family relations, improved neighbor relations, improved cultural activities, appreciation of art, improved voting behavior, participation in civic and community affairs, and increased awareness of the political problems of society. For the detailed examination of vocational education's potential benefits, refer to Manual for Estimating Societal Costs and Benefits of Vocational and Manpower Programs by Mehar Arora, published by the Center for Vocational, Technical and Adult Education, University of Wisconsin, 1975.

APPENDIX B-6

FLORIDA PROGRAM EVALUATION

In 1975, the Florida Legislature passed a law mandating program evaluations for vocational education at the secondary level. As a result of this legislation an evaluation process was developed with appropriate instrumentation to conduct program reviews for all programs during a five-year cycle.

The specific objectives for this program evaluation process include:

1. To develop and implement a system that would be available for local educational agencies to adopt or adapt in order to implement an evaluation process that is both summative and formative for their vocational programs in order to make decisions for program improvement.

2. To insure that the evaluation system upon implementation shall identify program discrepancies, develop recommendations for the elimination of these deficiencies, and determine possible strategies for the resolution of the cited deficiencies.

3. To insure that the alternative strategies that have been determined will include, when appropriate, the provision of technical assistance by Department of Education consultants through a systemized schedule of consultative service as an outcome of the process. This system will be based upon prioritized needs as jointly agreed upon by the LEA and DOE consultants.

The procedures that were used for program review were threefold. First, a program self-study was conducted. The Regional Program Director provided the local education agency with appropriate program self-study forms. These forms contained the standards which regional consultants would verify during a later on-site visit.

The second procedure was the actual on-site visit by the regional consultant. During the visit the consultant: 1) obtained rationale for answers recorded on the self-study forms, 2) reviewed evidences, 3) allowed for opportunities to make additions or revisions on their forms, 4) assessed quality above and beyond that recorded on the self-study form, 5) made preliminary arrangements for technical assistance when appropriate, and 6) related findings to the instructors in a developmental and constructive way.

After completing the on-site visit, an exit conference was conducted with the agency head and designated staff to discuss the results of the review. The major aims of the exit conference were to point out the strengths and weaknesses of various programs, to cite recommendations for improvement of programs, and to review the need for technical assistance and tentatively schedule such assistance where appropriate.

The third and final program review procedure was to make a formal report of the program review findings to the educational agency and the regional consultants. This report would be made by the regional director, and only if it was requested in the pre-review negotiations.

The findings and results of this program review show that for the first year (1976-77), 1,527 vocational programs were reviewed. This represented 361 pre-vocational or pre-technical programs and 1,166 occupational proficiency offerings. A total of 2,024 teachers participated in the self-study and on-site validation

visit by the DOE consultants. This exceeded the project goal for year one of 2,000 teachers.

The programs that were evaluated represented a valid cross section of all the community colleges, area vocational-technical centers, and secondary high schools throughout the state. The program review procedure as established will again be conducted during 1977-1978.

APPENDIX B-7

OKLAHOMA COST ANALYSIS

A preliminary project was conducted in the State of Oklahoma during 1971-1973. The goal of the project was to develop budgets for all occupations available in the state with sufficient supply and demand information available, in order to determine the outcomes of training programs and to identify new programs that would need to be implemented in order to fulfill the manpower requirements for Oklahoma. The results of this preliminary project were very valuable in assisting the State Department of Vocational and Technical Education to move in the direction most efficient in training persons for the manpower need. Also, the budgets that were developed have been updated and used to develop state and federal budgets for vocational and technical education in the State of Oklahoma.

A second project that has been conducted in the State of Oklahoma is the implementing of a revised copy of Handbook Two for Program Accounting rather than Categorical Accounting. The procedures developed in this project have been used in Oklahoma for the past five years. They have been fully adopted in the area vocational and technical schools, but they have not been fully adopted by the comprehensive high schools.

The approach used in implementing Handbook Two for Program Accounting was to identify schools in which to test the project. The pilot schools were identified and brought into seminars to learn procedures for classifying costs and to provide codes for them. As codes were presented, they were programmed with a computer service available to all schools in the state.

The preliminary findings of this project showed that the comprehensive high schools were not ready to adopt the new classification system on costs for Program Accounting. They have tended to go back toward Categorical Accounting.

In the area vocational and technical schools, the new Handbook Two was fully adopted. The school administrators preferred the ability to compare training programs with their expected outcomes. In this way they could make the informed decisions required to operate effective programs in their institutions.

APPENDIX C-1

COMPUTERIZED COST MODEL PROPOSAL

During January 1978, a proposal was made by the Assistant Director-Business Operations at MPTI to develop a cost model which will use cost data already programmed into the computer or will develop new procedures for collecting and storing cost data in the computer at MPTI. This proposal should serve as a starting point in developing a Cost Benefit/Effectiveness Model for program evaluation at Moraine Park.

Information for the Cost Model, to a large extent, would come from existing data, some of which may require a change in format and/or calculation. Costs would be determined by course or instructional area and then combined by curriculum to aggregate total program costs.

The proposed Cost Model would become a part of the program evaluation system at MPTI. It could be used as a budget planning model by inputting hypothetical data to see the effect that would result. It also would be able to determine marginal costs (the additional cost necessary to generate one additional student in an existing program), which in turn would verify the maximum enrollment for each program or course, based on cost factors.

In general, the net benefits of implementing the Cost Model would be improved budgetary planning -- greater accuracy in assessing the efficiency of an educational program at any time throughout the year while at the same time saving a considerable amount of staff time and effort. This Cost Model, combined with the Program Evaluation/Discontinuance Model proposed to be developed at MPTI during 1978-79, will provide MPTI with reliable data for decision making at the program level.

APPENDIX D-1

OBJECTIVES AND TARGET GOAL STATEMENTS FOR POSTSECONDARY OCCUPATIONAL PROGRAMS

OBJECTIVE 1. Students will be enrolled in the postsecondary occupational program to meet their educational needs. Target goals are:

1-a. ____ (a total number of) students will be enrolled in the occupational program.

1-b. ____ percent of the enrollments will include disadvantaged students.

1-c. ____ percent of the enrollments will include handicapped students.

1-d. ____ percent of male or female students will be enrolled in the program traditionally considered sex-stereotyped.

OBJECTIVE 2. Students enrolled in the postsecondary occupational program will complete the requirements of the program and be prepared for career development. Target goals are:

2-a. ____ percent of enrollments will receive available information and services for career preparation.

2-b. ____ percent of enrollments will complete the program requirements by passing appropriate occupational competency tests.

2-c. ____ percent of enrollments will receive a certificate or associate degree relating to the program.

2-d. ____ percent of enrollments will pass licensure examinations relating to the specific program.

OBJECTIVE 3. Program completers will be placed according to their training in jobs which will meet manpower demands. Target goals are:

3-a. ____ percent of completers having sought employment will be placed within six months after completing the program. (Consider military and apprenticeship as employed.)

3-b. ____ percent of completers available for employment will be placed in a job position as related to program in six months after completion.

3-c. ____ percent of completers available for employment will find a job in six months after completion which meets manpower needs within the state.

3-d. ____ percent of completers available for employment will find a job in six months after completion to meet manpower needs outside the state.

3-e. ____ percent of employed completers will be rated as satisfactory in job skills by the employer.

3-f. ____ percent of employed completers will be rated as satisfactory in personal and social skills by the employer.

OBJECTIVE 4. Some students will elect advanced studies after completion of the program. Target goals are:

4-a. ____ percent of the graduates will be enrolled in advanced study programs.

4-b. ____ percent of the students enrolled in advanced study programs will be in an equivalent program specialty.

4-c. ____ percent of the students enrolled in advanced study programs will be in an allied program.

4-d. ____ percent of the students enrolled in advanced study programs will rate their previous program as helpful or a sound foundation to continue their advanced studies.

OBJECTIVE 5. Program completers will increase their job satisfaction, status, and economic benefits. Target goals are:

5-a. ____ percent of employed completers will report high job satisfaction.

5-b. ____ percent of employed completers will report salary increases related to previous training in the program.

5-c. ____ percent of employed completers will report job advancement related to the previous training in the program.

5-d. ____ increased earnings (net income) made by the individual will be related to the training in the programs.

5-e. ____ increased benefits (gross income) gained by the society will result from the training in the program.

OBJECTIVES AND TARGET GOAL STATEMENTS (cont'd)

DATA FORM FOR DETERMINING THE

PROGRAM TARGET GOALS AND OUTPUTS

DATA UNIT

Program Objective	Factor Unit		Basic Unit		Goal or Output
1-a.	# of total enrollments			=	
1-b.	# of disadvantaged students	÷	# of total enrollments	x 100 =	%
1-c.	# of handicapped students	÷	# of total enrollments	x 100 =	%
1-d.	# of male or female students	÷	# of total enrollments	x 100 =	%
2-a.	# of students who receive career information	÷	# of total enrollments	x 100 =	%
2-b.	# of students who complete program requirements	÷	# of total enrollments	x 100 =	%
2-c.	# of students who receive a degree	÷	# of total enrollments	x 100 =	%

OBJECTIVES AND TARGET GOAL STATEMENTS (cont'd)

DATA UNIT

Program Objective	Factor Unit		Basic Unit		Goal or Output
2-d.	# of students who pass licensure examinations	÷	# of total enrollments	x 100 =	%
3-a.	# of completers employed	÷	# of completers available for employment	x 100 =	%
3-b.	# of completers placed in related jobs	÷	# of completers available for employment	x 100 =	%
3-c.	# of completers employed within state	÷	# of completers available for manpower needs	x 100 =	%
3-d.	# of completers employed outside the state	÷	# of completers available for manpower needs	x 100 =	%
3-e.	# of employed completers whose job skills satisfy employers	÷	# of employed completers rated by employers	x 100 =	%
3-f.	# of employed completers whose personal and social skills satisfy employers	÷	# of employed completers rated by employers	x 100 =	%

OBJECTIVES AND TARGET GOAL STATEMENTS (cont'd)

DATA UNIT

Program Objective	Factor Unit		Basic Unit		Goal or Output
4-a.	# of completers enrolled in advanced studies	÷	# of total completers	x 100 =	%
4-b.	# of completers enrolled in a specialty equivalent to previous studies	÷	# of completers enrolled in advanced studies	x 100 =	%
4-c.	# of completers enrolled in a program allied to previous studies	÷	# of completers enrolled in advanced studies	x 100 =	%
4-d.	# of enrolled completers who rate the previous program as a sound foundation for advanced studies	÷	# of completers enrolled in advanced studies	x 100 =	%
5-a.	# of employed completers who report high job satisfaction	÷	# of employed completers	x 100 =	%
5-b.	# of employed completers who report salary increases related to previous training	÷	# of employed completers	x 100 =	%

OBJECTIVES AND TARGET GOAL STATEMENTS (cont'd)

DATA UNIT

Program Objective	Factor Unit		Basic Unit		Goal or Output
5-c.	# of employed completers who report job advancement related to previous training	÷	# of employed completers	x 100 =	%
5-d.	Average of employed completers' earnings (net incomes)	-	Average of high school graduates' earnings (net incomes)	= $	
5-e.	Average of completers' earnings including taxes (gross income)	-	Average of high school graduates' earnings including taxes (gross income)	= $	

APPENDIX E-1

MPTI ENTERING STUDENT SURVEY FORM

1. Name: _____

   Address: _____

   _____

   Telephone Number: _____

2. Program in which you are enrolling: _____

3. Sex: ☐1. Male ☐2. Female

4. Marital Status: ☐1. Married ☐2. Single ☐3. Other

5. Are you enrolling in the program which is your first choice?

   ☐1. Yes ☐2. No

6. Why are you enrolling at MPTI? (check only one answer)

   ☐1. Want skills to get a job or a better job.
   ☐2. Want an Associate Degree in the program I'm enrolling in.
   ☐3. Want a Vocational Diploma in the program I'm enrolling in.
   ☐4. Was not sure what I wanted so thought I'd try school.
   ☐5. Could not find a job and decided school was a good alternative.
   ☐6. A counselor directed me.
   ☐7. My parents told me to attend MPTI.
   ☐8. My friends talked me into it.
   ☐9. Other (please specify) _____

7. How did you find out about MPTI?

   ☐1. Brochure
   ☐2. Radio advertisement
   ☐3. High school counselor
   ☐4. Newspaper
   ☐5. Word of mouth
   ☐6. From my employer
   ☐7. An MPTI counselor or instructor
   ☐8. Other (please specify) _____

8. Are you concerned about your ability to finance your education?

   ☐1. Yes ☐2. No

9. Did you apply for financial aid?

☐1. Yes ☐2. No

10. Are you making car payments?

☐1. Yes ☐2. No

11. Are you concerned about arranging transportation to and from school?

☐1. Yes ☐2. No

12. Are you concerned about obtaining adequate housing?

☐1. Yes ☐2. No

13. Are you planning to work as well as attend school?

☐1. Yes, full-time
☐2. Yes, part-time
☐3. Yes, Work Study
☐4. No

14. Please add any comments or suggestions you may have on MPTI's enrollment procedures or your impressions of the school.

THANK YOU FOR COMPLETING THIS FORM!!

APPENDIX E-2

MPTI ATTRITION SURVEY FORM

1. Name: _____

   Address: _____

   _____

2. Program from which you are withdrawing: _____

DIRECTIONS: Please check one correct number of your choice and/or fill in the blank as indicated. If more space is needed to comment on a question or answer it more completely, please write in the margin or wherever else (on the back of the sheet) there is room.

3. How old are you right now? _____ years old.

4. Sex
   - ☐ 1. Male
   - ☐ 2. Female

5. Marital status while at school:
   - ☐ 1. Single
   - ☐ 2. Married
   - ☐ 3. Divorced
   - ☐ 4. Separated
   - ☐ 5. Widowed

6. Please indicate your present status:
   - ☐ 1. Employed full-time
   - ☐ 2. Employed part-time
   - ☐ 3. In military service
   - ☐ 4. Homemaker
   - ☐ 5. Attending a college or university full-time (Name: _____)
   - ☐ 6. Attending a technical institute full-time (Name: _____)
   - ☐ 7. Seeking employment
   - ☐ 8. Other (please specify) _____

7. Was transportation a major problem while you were attending school?
   - ☐ 1. No
   - ☐ 2. Yes (please explain) _____

8. Were you making car payments while attending school?
   - ☐ 1. Yes
   - ☐ 2. No

9. While attending vocational, technical school did you:

- ☐1. Stay at home and commute less than 15 miles one way
- ☐2. Stay at home and commute over 15 miles one way
- ☐3. Rent a room in the technical school's area
- ☐4. Rent an apartment in the school's area
- ☐5. Other (please explain) _____

10. Were you employed while attending school?

- ☐1. No
- ☐2. Yes, work study job at school
- ☐3. Yes, less than 20 hours per week
- ☐4. Yes, between 20 hours and 30 hours per week
- ☐5. Yes, more than 30 hours per week

11. Did financial reasons cause you to leave school?

- ☐1. No
- ☐2. Yes (please explain) _____

_____

12. If finances were a problem, why did you not seek financial aid?

- ☐1. I did but was turned down
- ☐2. Did not know it was available
- ☐3. Process too complicated
- ☐4. Must give too much private information
- ☐5. Other (please specify) _____

_____

13. Did you enroll in the program which you originally wanted?

- ☐1. Yes
- ☐2. No, I was counseled into another one
- ☐3. No, my first choice was filled
- ☐4. No, (other) _____

_____

14. Do you feel you were forced to take courses you had no need for?

- ☐1. No
- ☐2. Yes (which ones) _____

_____

_____

_____

15. When you began school, were you able to get the time schedule of classes you wanted?

☐1. Yes

☐2. No (if not, why not?) _____

_____

16. Please check all the students' organizations you participated in while in technical school:

☐1. None

☐2. Departmental club

☐3. Student Governing Board

☐4. Other _____

_____

_____

_____

17. Why did you enroll in vocational, technical school? (Check only one answer)

☐1. Parents forced me to go

☐2. Counselor directed me

☐3. Friends talked me into it

☐4. Could not find a job and decided school was a good alternative

☐5. Wanted skills to get a job or a better job

☐6. Wanted a degree in the program I enrolled in

☐7. Was not sure what I wanted to do so thought I would try school

☐8. Other (please specify) _____

18. Did you have any goal in mind when you entered tech? (Check only one answer)

☐1. No

☐2. Yes, an associate degree

☐3. Yes, a two-year diploma

☐4. Yes, a one-year diploma

☐5. Yes, to get the courses I needed to get a job

☐6. Other (please specify) _____

19. If you withdrew from MPTI, the most important reason was: (If more than one reason, indicate second reason by placing a 2 in the box provided, third with a 3, and so forth.)

☐1. Transfer to another school

☐2. Left to take a job related to my training at MPTI

☐3. Left to take a job unrelated to my training at MPTI

☐4. Left -- looking for a job

☐5. Completed what I wanted

☐6. Lost interest in school

19. (continued)

☐ 7. School wasn't what I expected

☐ 8. I never attended any classes. Why? _____

_____

☐ 9. I did poorly in my school work

20. (Continue following directions for Question 19)

☐ 1. I changed my career goal

☐ 2. Lack of money

☐ 3. Poor health, sickness

☐ 4. Entered military service

☐ 5. Moved out of MPTI District

☐ 6. I got married

☐ 7. Deceased

☐ 8. MPTI didn't offer the program I wanted (List program): _____

_____

☐ 9. Other (please specify) _____

_____

_____

21. Do you wish you could have remained in school?

☐ 1. Yes

☐ 2. No

22. I would have remained if I had:

☐ 1. More counseling

☐ 2. Better counseling

☐ 3. More help with my problems

☐ 4. Better schedule

☐ 5. Better classes

☐ 6. Better instructors

☐ 7. Financial aid

☐ 8. Different method of instruction (please explain) _____

_____

_____

☐ 9. Other (please specify) _____

_____

23. Do you think the faculty and staff tried to help you stay in school?

- ☐1. Yes
- ☐2. Yes, but not very much
- ☐3. No
- ☐4. No, I was just another number
- ☐5. Other (please specify) _____

_____

24. Do you plan to attend this school or any other in the near future?

- ☐1. Yes, this technical school
- ☐2. Yes, another technical school
- ☐3. Yes, a university or community college
- ☐4. No

25. What do you think of the vocational, technical school?

- ☐1. Too much like high school (please explain) _____

_____

- ☐2. Too big and confusing
- ☐3. Just right
- ☐4. Did not meet my needs (please explain) _____

_____

- ☐5. Other (please specify) _____

_____

26. Did you get what you wanted from this school?

- ☐1. Yes
- ☐2. No (if not, please explain what you wanted and why you did not get it) _____

_____

_____

_____

27. What could this school do to offer better services to you?

_____

_____

_____

THANK YOU: Your assistance is greatly appreciated. If you believe you could assist us more by coming in and explaining in person what problems caused you to leave, please make an appointment and do so.

APPENDIX E-3

MPTI GRADUATE FOLLOW UP

(6-month)

1. How do you feel about the training you received at MPTI?
   - ☐1. Very satisfied
   - ☐2. Satisfied
   - ☐3. Unsatisfied
   - ☐4. Very unsatisfied

2. Why did you enroll at MPTI?
   - ☐1. Parents forced me to go
   - ☐2. Counselor directed me
   - ☐3. Friends talked me into it
   - ☐4. Could not find a job and decided school was a good alternative
   - ☐5. Wanted skills to get a job, or a better job
   - ☐6. Wanted a Vocational Diploma in the program I enrolled in
   - ☐7. Wanted an Associate Degree in the program I enrolled in
   - ☐8. Wasn't sure what I wanted; thought I'd try school
   - ☐9. Other (please specify) _____

     _____

3. Did you achieve the goal you had in mind when you entered MPTI?
   - ☐1. Yes, I received an Associate Degree
   - ☐2. Yes, I received a Vocational Diploma
   - ☐3. Yes, I took the courses I needed to get a job
   - ☐4. Yes, other (please specify your goal) _____

     _____
   - ☐5. No
   - ☐6. Did not have a goal

---

4. What is your current employment status?
   - ☐1. Employed full-time
   - ☐2. Employed part-time
   - ☐3. Attending school: (name of school) _____
   - ☐4. Unemployed; currently seeking employment
   - ☐5. Unemployed; homemaker, pregnant, disabled, etc.

4. (continued)

☐6. In military service

--If unemployed, please skip to question 12.

5. When did you start working for your present employer?

☐1. Before enrolling at MPTI

☐2. While at MPTI

☐3. After leaving MPTI -- How long after? _____ weeks

6. Is your present job related to your training at MPTI?

☐1. Yes

☐2. No

7. Please describe your present job:

a. Name of employer _____

b. Address _____
(City) (State)

c. Your job title _____

d. Your duties _____

_____

e. How many hours do you work during an average week?

_____ hours of regular time _____ hours of overtime

8. What is your present salary or wage <u>before deductions</u>?

$_____ per hour

$_____ per week (Give only one answer)

$_____ per month

9. How satisfied are you with your present job?

☐1. Very satisfied

☐2. Fairly satisfied

☐3. Average satisfaction

☐4. Very little satisfaction

☐5. Highly dissatisfied, but intend to remain on the job

☐6. Highly dissatisfied, looking for a new job

10. Do you consider your present job to be permanent?

☐1. Yes

☐2. No

11. Which of the following helped you the most in finding your present job? (Check only one answer)

- ☐1. The school placement office
- ☐2. My parents or guardians
- ☐3. A brother or sister
- ☐4. A teacher
- ☐5. A friend
- ☐6. Wisconsin Job Service
- ☐7. Completely on my own
- ☐8. Other (please explain) _____

_____

---

12. Who influenced you most to attend MPTI? (Check only one answer)

- ☐1. High school counselor or teacher
- ☐2. MPTI counselor
- ☐3. Government agency counselor (veterans, Job Service)
- ☐4. Employer
- ☐5. Parent or guardian
- ☐6. Friend or relative
- ☐7. Someone who has attended MPTI
- ☐8. Nobody, I made my own decision
- ☐9. Other (please specify) _____

13. Check the source and list the percent of money which that source contributed to paying your way through school.

- ☐ 1. My own personal savings _____%
- ☐ 2. Financial aids through MPTI _____%
- ☐ 3. Parents or relatives _____%
- ☐ 4. CETA was paying my expenses _____%
- ☐ 5. Vocational rehabilitation was paying my expenses _____%
- ☐ 6. I received Veterans benefits _____%
- ☐ 7. I borrowed money to attend school _____%
- ☐ 8. Social Security helped pay my expenses _____%
- ☐ 9. I had a part-time job _____%
- ☐10. Other: _____ _____%

_____ _____%

_____ _____%

14. How much did you spend per year for:

    a. Tuition, books, school fees? $_____

    b. Room and board? $_____

    c. Transportation? $_____

    d. Other expenses? $_____

15. Please comment on how you feel about MPTI and/or the training you received here. Any suggestions for improving our services to the public are most welcome.

THANK YOU FOR COMPLETING THIS FORM!!

APPENDIX E-4

MPTI GRADUATE FOLLOW UP

(3-year)

1. How do you feel about the training you received at MPTI?
   - ☐1. Very satisfied
   - ☐2. Satisfied
   - ☐3. Unsatisfied
   - ☐4. Very unsatisfied

2. Are you achieving the goal or goals you set for yourself when you graduated from MPTI?
   - ☐1. Yes
   - ☐2. No

   Please explain: _____

   _____

   _____

   _____

3. What is your present employment status?
   - ☐1. Employed full-time
   - ☐2. Employed part-time
   - ☐3. Attending school: (name of school) _____
   - ☐4. Unemployed; currently seeking employment
   - ☐5. Unemployed; homemaker, pregnant, disabled, etc.
   - ☐6. In military service

   If unemployed, please skip to question 11.

4. Is your present job related to your training at MPTI?
   - ☐1. Yes
   - ☐2. No

5. Please describe your present job:
   a. Name of employer: _____
   b. Address. _____
      (City) (State)
   c. Your job title: _____
   d. Your duties: _____

      _____

5. (continued)

e. How many hours do you work during an average week?

_____ hours, regular time _____ hours, overtime

6. What is your present salary before deductions?

$_____ per hour

$_____ per week (Give only one answer)

$_____ per month

7. How many employers have you had since leaving MPTI?

☐1. one
☐2. two
☐3. three
☐4. four
☐5. five or more

8. How many times have you been promoted or have you advanced in your career?

☐1. never
☐2. once
☐3. twice
☐4. three times
☐5. four times
☐6. five times
☐7. six times
☐8. seven times or more

9. How satisfied are you with your present job?

☐1. Very satisfied
☐2. Fairly satisfied
☐3. Average satisfaction
☐4. Very little satisfaction
☐5. Highly dissatisfied, but intend to remain on the job
☐6. Highly dissatisfied, looking for a new job

10. Have you been unemployed during the past three years?

☐1. yes How many weeks? _____
☐2. no

11. Have you attended any other schools since leaving MPTI?

- ☐1. Yes, another VTAE school
- ☐2. Yes, a college or university
- ☐3. Yes, a correspondence course
- ☐4. Yes, a community or junior college
- ☐5. Yes, a company school
- ☐6. Yes, a military school
- ☐7. Yes, another school: (please specify) _____
- ☐8. No

12. If yes, did this school accept your MPTI credits?

- ☐1. Yes
- ☐2. No

13. Are you:

- ☐1. Single
- ☐2. Married Wife's name: _____
  Number of children: _____

14. Would you like to receive the Alumni News?

- ☐1. Yes
- ☐2. No

15. What courses could Moraine Park offer to help you NOW?

_____

_____

_____

16. Please comment on your years at MPTI or changes that have taken place since your graduation.

THANK YOU FOR COMPLETING THIS FORM!!

APPENDIX E-5

COST BENEFIT FORM

VTAE GRADUATES

1. Check one: _____ male _____ female 2. Age: _____

3. In what year did you graduate from high school? _____

4. Type of high school program: _____vocational _____academic (college prep.)

SCHOOL COSTS

5. Did you receive any LOANS to defray the cost of your education?
_____ yes _____no Amount: $_____

6. While in school, did you receive any SCHOLARSHIPS or GRANTS?
_____ yes _____no If yes, estimate the average annual income from these sources: $_____

7. While in school, did you receive any:
Unemployment Compensation $_____
Social Security $_____
City, State or Federal Subsidy $_____
Veterans Benefits $_____

8. As a student, how much did you earn per year from part-time or full-time jobs? $_____

9. How much did you spend per year on TUITION, BOOKS, and SCHOOL FEES?
$_____

10. How much did you earn, before taxes, during the year prior to entering MPTI or LTI? $_____

11. Where did you reside while attending school?
_____ at home _____ private room
_____ apartment _____ other (specify)_____

12. Please list the cost of the above residence. $_____ per week $_____ per month

13. How many miles did you drive or walk to school? _____ miles

ECONOMIC FACTORS AFTER GRADUATION

14. What is your present employment status?
_____ employed full time _____ employed part time
_____ military service _____ unemployed

If you are unemployed, please explain: _____ homemaker _____ school
_____ looking for a job
_____ other: _____

If you are in school, the name of the school is:_____
date of graduation:_____

- over -

15. Please complete the following:

a) Number of jobs held since high school? _____
Number full time: _____ Number part time _____

b) Number of promotions: _____

c) What is the average length of time you spent on a job, considering each promotion as a new job? _____ months.

16. How long did it take to find a job in your field after graduating from MPTI or LTI? _____ weeks.

17. Do you consider your present job to be a permanent occupation? _____ yes ____no

18. How many hours do you work during an average week? _____ hours regular time
_____ hours overtime

19. What was the starting annual salary you received in your first position after high school? $_____ After leaving MPTI or LTI? $_____

20. What is your current annual salary before taxes? $_____

21. If you have an additional source of income besides the above listed job, please indicate your annual income from this source: $_____

22. What was the total amount of Federal and State Income Taxes that you paid on income earned in the following years (after deductions):

1973 $_____ (taxes paid in 1974)
1974 $_____ (taxes paid in 1975)
1975 $_____ (taxes paid in 1976)
1976 $_____ (taxes paid in 1977)
1977 $_____ (taxes paid in 1978)

23. How satisfied are you with your present job?

_____ very satisfied
_____ fairly satisfied
_____ average satisfaction
_____ very little satisfaction
_____ highly dissatisfied, but intend to stay on the job
_____ highly dissatisfied, but intend to look for a new job

24. Were you out of work at any time (except for the time that you were in school) during 1976? ____ yes _____ no During 1977? _____ yes ____ no
If yes, how many weeks were you out of work? _____weeks in 1976;
_____ weeks in 1977; amount of Unemployment Compensation received in 1976 $_____; in 1977 $_____.

25. COMMENTS:

Thank you very much for taking time to complete this survey form.

APPENDIX F-1

"NORMS"

NORM	HIGH SCHOOL GRADUATES - NO ADDITIONAL TRAINING (OR STUDENTS)	VTAE GRADUATES (OR STUDENTS)
A. Percent of graduates who belong to a:		
1. school-related organization	35%	19%
2. sportsmen's club	11%	14%
3. church organization	30%	33%
4. social club	6%	14%
5. volunteer work organization	11%	8%
6. fraternal organization	1%	4%
7. community services club	7%	8%
8. at least "one" organization	59%	58%
B. Average number of promotions received	1.73	2.55
C. Average length of time on job	7.92 months	9.45 months
D. Average length of time to find a job after graduation	2.07 weeks	6.04 weeks
E. Average number of weeks out of work - 1976	14.00 weeks	11.37 weeks
- 1977	8.16 weeks	10.35 weeks
F. Self-acceptance	74.65	76.77
(Students)	(79.11)	(71.26)
G. Attitude toward education	29.11	29.77
(Students)	(29.39)	(27.95)
H. Attitude toward employment	62.10	60.92
(Students)	(65.87)	(56.87)
I. Study orientation (Entering students)		123.07
a. study habits		54.41
b. study attitudes		68.71
Study orientation (Continuing students)		133.63
a. study habits		60.74
b. study attitudes		70.68

NORM	HIGH SCHOOL GRADUATES - NO ADDITIONAL TRAINING (OR STUDENTS)	VTAE GRADUATES (OR STUDENTS)
I. (continued) Study orientation (students)	79.6	
a. study habits	38.2	
b. study attitudes	41.6	
J. Married	8%	26%
Not married	92%	74%
K. Hometown:		
a. farm	41%	17%
b. town	29%	33%
c. small city	29%	45%
d. medium city	1%	2%
e. large city	0%	3%
L. Parents' education:		
a. less than H.S. grad.	F: 38% M: 21%	F: 38% M: 28%
b. high school grad.	27% 54%	38% 45%
c. some college	8% 4%	9% 4%
d. college grad.	5% 7%	7% 6%
e. some graduate or professional training	7% 1%	1% 3%
f. graduate or professional degree	4% 7%	1% 4%
g. attend voc.-tech. school	4% 4%	4% 9%
h. voc.-tech. school grad	4% 1%	2% 1%
M. Parents' income:		
a. less than $5,000	F: 2% M: 60%	F: 4% M: 55%
b. $5,000-$10,000	20% 22%	19% 28%
c. $10,000-$12,500	13% 10%	18% 5%
d. $12,500-$15,000	13% 4%	22% 7%
e. $15,000-$20,000	24% 1%	18% 3%
f. $20,000-$30,000	15% 3%	14% 2%
g. $30,000-$50,000	8% 0%	3% 0%
h. over $50,000	4% 0%	3% 1%
N. Plan to vote in 1980	93%	94%
O. Vocational high school education	52%	46%
Academic high school education	48%	54%

"NORMS" (cont'd)

NORM	HIGH SCHOOL GRADUATES - NO ADDITIONAL TRAINING (OR STUDENTS)	VTAE GRADUATES (OR STUDENTS)
P. Assistance in finding job from:		
a. teacher	5%	6%
b. school placement office	3%	20%
c. parents	21%	8%
d. brother/sister	6%	3%
e. friend	17%	6%
f. by myself	37%	41%
g. other	13%	17%
Q. Employment		
a. full-time	54%	77%
b. part-time	21%	11%
c. military	0%	1%
d. unemployed	26%	11%
e. permanent job	31%	58%
f. temporary job	69%	42%
R. Hours worked per week:		
a. 10 or less	4%	2%
b. 11-20	9%	6%
c. 21-25	4%	3%
d. 26-30	3%	2%
e. 31-35	5%	5%
f. 36-40	24%	18%
g. 40-45	21%	43%
h. over 45	13%	13%
S. Job satisfaction:		
a. very satisfied	34%	34%
b. fairly satisfied	24%	35%
c. average satisfaction	26%	19%
d. very little satisfaction	8%	6%
e. highly dissatisfied - intend to stay	1%	1%
f. highly dissatisfied - looking for new job	8%	5%
T. Out of work at any time during:		
a. 1976	19%	23%
b. 1977	29%	36%

NORM	HIGH SCHOOL GRADUATES - NO ADDITIONAL TRAINING (OR STUDENTS)	VTAE GRADUATES (OR STUDENTS)
U. Highest degree you intend to obtain:		
a. none	35%	10%
b. Vocational Diploma	23%	25%
c. Associate Degree	14%	33%
d. Bachelor's Degree	13%	16%
e. Master's Degree	9%	9%
f. Doctorate Degree	1%	0%
g. Medical Degree	1%	1%
h. Law Degree	2%	2%
i. other	2%	6%
V. Amount of personal life given up to attend school:		
a. very great amount		10%
b. large amount		22%
c. some		40%
d. very little		27%
W. Personality traits:		
a. ability to handle stress	35.31	34.71
b. academic ability	33.60	36.17
c. athletic ability	33.10	31.38
d. artistic ability	26.87	28.06
e. cheerfulness	36.52	36.84
f. drive to achieve	36.26	37.66
g. idealism	32.32	34.69
h. impulsiveness	33.07	33.10
i. independence	35.74	37.82
j. leadership ability	32.78	33.12
k. mathematical ability	31.13	33.16
l. mechanical ability	28.95	31.77
m. optimism	33.93	34.29
n. originality	33.07	33.01
o. personal organization	33.25	35.57
p. persistence	34.47	35.20
q. popularity	32.48	32.25
r. public speaking ability	27.02	26.84
s. reading ability	33.65	34.80
t. resourcefulness	33.16	34.62
u. self-confidence - intellectual	33.95	34.34
v. self-confidence - social	31.58	31.90
w. sensitivity to criticism	29.82	31.27
x. stubbornness	32.02	32.73
y. tolerance	33.42	35.00
z. adaptability to changes	35.22	36.13

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